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CANADIAN MEDICAL ASSOCIATION

Annual Meeting in Montreal—June 12th, 13th and 14th, 1923

THE plans outlined in the preliminary announcements in preceding issues of the *Journal* (December, January, February) are developing in a satisfactory way although minor changes have been found necessary.

For instance, Sir Berkeley Moynihan's address "Medicine in Art" will be delivered at an open meeting to which members, their ladies, and guests will be invited. This will necessitate departure from the decision to hold no evening sessions, and Tuesday evening, June 12th, will be devoted to this address.

The programme for the opening day, (Tuesday) will be: registration; discussions on "Infections of the Hand," and "Injuries of the Hand and Forearm;" official luncheon at 12 noon; in the afternoon a paper by W. J. Mayo, "Septic Factors in the Great Plagues;" Orthopaedic Clinic on selected illustrative cases by Sir Robert Jones, of Liverpool, and lantern slide demonstration on "Acute Osteomyelitis" by Edward Gallie, Toronto. In the evening Sir Berkeley Moynihan's address as noted above.

All the sessions of opening day will be held in the Mount Royal Hotel.

On the second day (Wednesday) the afternoon general session will be given up to papers, "Intestinal Obstruction," Sir William Taylor, Dublin; Symposium, Recent advances in the treatment of organic disease; Nephritis; Myocarditis; Pleural Infections; Diabetes and the Prostate.

In the evening the official banquet.

For the afternoon of the third day the programme is not as yet complete.

The Hospital Clinics: As announced, sectional clinics will be given in the various hospitals during the forenoons of Wednesday and Thursday as forming part of the Association programme. In addition the staffs of the hospitals have arranged to fill in the week from Monday to Saturday with a *clinical week.*

Eye, Ear, Nose, and Throat Section: The programme for this section is well advanced. Clinical sessions will be held at the Royal Victoria, Montreal General and Hotel Dieu Hospitals on Tuesday, Wednesday and Thursday respectively, whilst two other sessions will be held in the Mount Royal Hotel on Wednesday and Thursday. Dr. S. F. Fraser, of the Royal Infirmary, Edinburgh, will be present, and will contribute.

Canadian Society of Anaesthetists

The following have consented to participate in the programme:

H. G. Barbour, Professor of Pharmacology, McGill;

W. Easson Brown, Ass't. Anaesthetist, Toronto General Hospital;

J. J. Buettner, Assoc. Prof. of Anaesthesia, Syracuse;

M. S. Dooley, Prof. of Pharmacology, Syracuse;

Robert Hammond, New York; W. B. Howell, Montreal;

T. J. Kruse, Assoc. Prof. of Pharmacology, Pittsburg;

E. C. Levine, Montreal; F H. McMechan, Avon Lake, Ohio;

W. L. Mendenhall, Prof. of Pharmacology, Boston;

R. L. Stehle, Ass't. Prof. of Pharmacology, McGill;

D. A. Warren, Hamilton.

The address of welcome will be delivered by W. W. Chipman, Prof. of Gynaecology and Obstetrics, McGill University.

ABSTRACT OF THE PRESIDENTIAL ADDRESS DELIVERED AT THE ANNUAL MEETING OF THE MANITOBA MEDICAL ASSOCIATION

T. Glen Hamilton, M.D., F.A.C.S

Winnipeg

At our annual meeting it is highly advisable that we should take stock of our organization and its affairs. A retrospect that takes brief recognition of successes and failures is essential to future welfare and progress. It is a pleasure to note that a wider interest in our Association, and a keener appreciation of its aims, and a more ready participation in its activities appears to have developed among the medical men of our province.

In January last a new Association—the Brandon and District Association—was formed, and both it, and the Northwestern and Winnipeg Associations have had a successful year. These Associations have helped to cultivate a broader, and deeper interest, and a more co-operative spirit, and have aided the activities of the Provincial Association. Moreover, we in return have been enabled on many occasions to give them aid by arranging for lectures at the Provincial Organization's expense to assist in the programmes of their local meetings. It is very desirable that the remaining districts in the province, for instance, the large area tributary to Carman and Morden, and the area tributary to Portage la Prairie and Neepawa, should be organized for a local conference during the coming year. The *Bulletin* of the Association keeps the isolated members of the profession in touch with medical affairs in the province, but the opportunity should be found of sending out a travelling clinic and a lecture demonstration such as have been reported upon so favourably in other parts of the Dominion.

Of the active practitioners in this Province, fifty-seven and a half per cent. are paid up members of the Association. This increased interest in the medical affairs of the province is gratifying to all its officers but we should like to see the percentage increased to one hundred. We were fortunate this year in having the added stimulus in interest resulting from the meeting of the Canadian Medical Association with us in Winnipeg in June. The affiliation existing between the Canadian Medical and the Provincial and Local Associations should be carefully fostered. Our Association *Bulletin*, which has been issued regularly each month throughout the year, has been sent to every practitioner in the Province irrespective of whether he was a paid-up member of the Association or not; also to every medical student of the final year; to the members of the Hospital Association, Hospital Boards and Matrons, and to the various Provincial Medical Associations in the Dominion.

You will recall that two years ago by amendment to our Constitution there was established a relationship between the College of Physicians and Surgeons and the Manitoba Medical Association in order to link together more closely the activities of the two organizations. It was also hoped at that time to secure several amendments to the Medical Act, which would bring the Council of the College of Physicians and Surgeons closer to the electorate and make it more responsive to its wishes. Several amendments to our antiquated Medical Act are surely needed. More frequent elections to the College of Physicians and Surgeons should be held. If the appointments to the Council were for two years instead of three years, interest would be stimulated and a continuity of policy assured by electing half their number every year. Again, the ratio of representation is ill-proportioned; for North Winnipeg has thirty-nine practitioners, Centre Winnipeg fifty-nine, South Winnipeg two hundred and seven, yet each of these groups is represented by three members in the Council. The liberty of the College of Physicians and Surgeons' Council in making expenditure of funds is altogether too restricted by the present Medical Act. The Manitoba Medical Association has had to assume and pay for several activities which were decidedly the business of the whole profession. Why should not the Treasurer of the College of Physicians and Surgeons be enabled legally to assume

certain liabilities since its funds virtually belong to the whole profession? If the Manitoba Medical Association were relieved in this way the annual fee could be reduced.

Another matter for serious consideration in amending the Medical Act is the question of the annual compulsory registration of all practitioners. The Medical Act excludes as ineligible for election to the Council of the College of Physicians and Surgeons all members who belong to the faculty of the Medical College. Since the merging of the Medical College with the University, it does not seem reasonable that any such barrier should be kept up. The College of Physicians and Surgeons in their Council should become more like a House of Commons reflecting the various opinions of medical men and less like a Senate removed from the movements of popular opinion.

You will recall that at the last session of the legislature it was expected that another attempt would be made to license irregular practitioners. We passed resolutions relative to this matter at our last annual meeting and a "follow-up" committee was appointed. This committee prepared and issued a brochure containing resolutions. It was entitled "Medical Licensure," and five thousand copies were printed, and carefully distributed to representative and responsible people throughout the province. As the Provincial Legislature was dissolved before the matter came up for final consideration, our actual position was not revealed, although we know the pamphlet was well received and the general effect was excellent. While we have reason for confidence in the integrity and good judgment of the members of the new government, we must assist them as far as possible in keeping the people of this province free from the iniquitous state of affairs, which has developed elsewhere through the ignorance or failure of some legislators.

We have noted that, as a natural reaction resulting from the scarcity of trained medical men in various parts of the country, some people have expressed the opinion that they would insist on a lower grade of training for medical graduates. They think that by this means they could fill up the professional ranks. They would go further and admit the so-called "graduates" of cults and quackeries to whom a world famous surgeon referred a few days ago in an American paper as; "graduates who in a few months acquire a jargon and by blatant salesmanship sell to an unprotected but willing public."

It is rare that legislation far in advance of the public intelligence can be secured. The application to the individual, or to the community, of principles of health founded on recent discovery is likewise frequently difficult. Military discipline during the war, made possible the prompt application of many scientific methods. A very few months showed their wonderful economical value to life and health. Inoculation against typhoid may be taken as an instance of such a public health measure. The public must be educated. One hundred and twenty-five years have passed since Jenner made his discovery and still the value of vaccination against smallpox is denied by many. The public should be told that in Manilla alone the death rate of six thousand per year was reduced to zero twelve months after the introduction of vaccination.

Our Association has made a beginning in the matter of telling the public something about medical matters by holding popular lectures at the provincial and local meetings. Also a number of medical articles have been written, and have appeared in the more important papers. I would draw your attention to the fact that during the past year the requests for popular lectures on the occasion of medical conventions were hard to meet. It is one of the shortcomings of our profession that too few of our men have equipped themselves for lecturing whether in a technical or in a popular way. A much larger number of our members should prepare addresses, which would be ready for delivery as part of a programme or as a separate lecture on short notice. It has been suggested in the matter of newspaper articles that probably short paragraphs would prove of greater value than longer and more technical essays. In a medical educational campaign a press committee could be found to write short and aptly-expressed paragraphs, and to feed these to the newspapers of the province. Much can be achieved in this way, and only by this method will our people secure that grasp of medical science which will enable them to appreciate the benefits it holds for them in the prevention and treatment of disease. Then the hollow and sophisticated claims of quackery will not attract them. It is said that three-fourths of the sorrows of men are due to apprehension. We know that many diseases are self-limited and cure themselves. Cults, quackeries, and patent medicines have their triumphs in the relief of apprehension, and take credit for the relief of self-curing diseases. Lying in the wake of quacks,

XUM

however, are cases of hopelessly delayed cancer, tuberculosis, and organic diseases—the wreckage of human life. We must put forward an earnest and self-denying effort to educate the public in popular medical science.

While our medical practice should not be considered as a commercial enterprise, we are undoubtedly lacking in those business principles which every other line of activity has found essential. I would go further and say that not only have we been negligent in not giving due attention to the matter of informing the public, but we have been so negligent that already many duties which ordinarily should be performed or overseen by the medical profession—duties analogous to those assumed by commercial and industrial concerns—have been entirely ignored by us and left to the public. In consequence of our failure, insurance companies, philanthropic and other public-spirited bodies have, in a large measure, supplied the little that hitherto has been given of medical enlightenment to the public.

Lord Dawson in a recent address has pointed out that physicians must become psychologists and study the mental as well as the physical aspects of disease. The unending line of pseudo-scientists has all too readily grasped this idea. So long as we persist in treating the neurotic with an unsympathetic and jocular attitude, just so long "irregulars" will continue to flourish. The time is fast approaching when the action of the sub-conscious mind upon the bodily functions must receive more attention from our leading scientists. Science may yet find that faith can, and does at times, assist in removing the mountains of pain and distress.

During the year that has passed the code of ethics of the medical profession of Canada was revised. A considerable amount of unnecessary material existing in the former code has been cleared away. While the spirit remains the same, its expression and arrangements have been brought more into line with the conditions and problems of practice to-day. Restoration to our former status, from which we as a profession have been definitely lowered in the eyes of the public by the actions of a few, will be recovered by an observance of ethical principles rather than by disciplinary measures. We have to consider seriously what tests and certificates of moral character should be demanded to enable one to enter upon the study of medicine or to continue in its practice.

RECENT CANCER THERAPY*

FRANCIS CARTER WOOD

Director of the Institute of Cancer Research, Columbia University, New York

THIS is Cancer Week. Its very existence represents an undertaking by the members of the medical profession and their allies among the lay public of far greater importance than is generally recognized. Too often we fight our battles single-handed. Too often the plain people point out that a profession is likely to become bound by rules and regulations so that its efficiency is hampered and it cannot accomplish what is of the utmost value for its own purposes, for many of the important reforms of the profession have come from those who were not its members. Cancer Week illustrates extremely well the admirable combination of these two forces. Its importance cannot be overestimated, yet its advent has been greeted in some quarters with half hearted approval or even open criticism. I do not refer in this to the ravings of the quacks whose business is being damaged by publicity, but I mean that well-intending members of the medical profession have remarked both in print and in private that the campaign of the Society for the Control of Cancer was scaring people, apparently oblivious of the fact that it is better to be scared than to be dead of cancer, and also apparently oblivious of one other important thing, and that is, that at present by any means of treatment we reach only a minute fraction of the sufferers from cancer because they come too late. Since concrete examples are always useful, I inquired some time ago in a surgical conference in my own hospital as to the number of cases

*Paper read before a special meeting of members of the Academy of Medicine, Toronto, Nov. 14th, 1922.

entering the institution for surgical treatment in whom the disease had advanced so little that a permanent cure could be expected. At first the surgeons were inclined to think that a considerable proportion of cancer patients admitted were easily operable with promise of good results, but on a careful survey of some 700 cases of cancer entering during the past two years and a half, it was found that the proportion was extremely small. Including the views of the most optimistic, the percentage of easily operable cases was not over twenty. Many of the presumably operable group, however, were found during the course of the operation to offer no prospect of permanent cure. Extensions of the growth, which had not been demonstrable when the clinical examination was made, were found upon exploration. Probably a conservative estimate would be that not over ten per cent. of the cases entering a general hospital in a very intelligent community are operable, and of these the larger proportion die ultimately of a recurrence, so of those entering such an institution I believe it is safe to say that hardly five per cent. are cured even by the highest skill in diagnosis and treatment which the medical profession can offer to-day.

In hospitals in which the material is largely from the more unintelligent classes especially among recent immigrants, where ignorance of the symptoms of the disease is complete, the number of patients who are operable often falls below one per cent. To these advanced and inoperable cases, radium and x-ray offer only amelioration, and only in rarest instances has a cure of five years' duration been produced, and this chiefly in epidermal carcinoma or in that of the cervix. These facts are not due to inefficiency in the medical profession itself, although it is true that there is still too much hesitation in making a definite diagnosis and urging the patient to consent to operative treatment. Many of the older practitioners are apt to watch a tumour grow, to wait until the diagnosis is completed by the appearance of the classic textbook description of cancer. In most instances the patient then is inoperable. It is indeed difficult to tell a person in apparently perfect health that he must immediately submit to a mutilating operation, and many people suffering from small early tumours cannot be convinced of the necessity for such a procedure. Even the surgeon himself is sometimes to blame for a dilatory attitude towards the treatment of cancer. It is too often forgotten that every moment a cancer exists in the body increases the liability of a metastasis to a distance; that the only time to operate on a cancer is as soon as it is found, and that it is better to do a few unnecessary explorations in order to attack the disease at a period when it is curable, than to delay till the diagnosis is easy. It has been known for 2,000 years that only early cancer is curable. But most of the responsibility for the high death rate from cancer which is carrying off at least 90,000 people in the United States, and 10,000 in Canada does not lie at the door of the medical profession. It is due to the gross ignorance of a large part of the population concerning the nature of the disease; they do not know that cancer is a painless disease, one without symptoms until it is fairly advanced, and that the only method of accomplishing satisfactory results is to so educate people that they will consult a physician in the early stages of the disease. It has been estimated that 20,000 people in the United States and 2,000 in Canada could be saved annually if they would promptly apply for the surgical removal of early carcinomata of the skin, the lip, the tongue and the breast; all tumours which can be felt or seen. It is, and will always continue to be, a herculean task to overcome the indifference of people toward obtaining a diagnosis in a disease which is painless and causes no symptoms. No one with a toothache delays very long in seeing a dentist, and yet no one ever died of toothache. No person with pneumonia procrastinates in obtaining help from the nearest physician, and yet every one of us sees patients who have delayed months and years with a cancer which from their own description must have been completely and easily removable at some period during its course.

In addition to this popular inertia, we have to combat the pernicious activities of those potential murderers—the quacks—who, both in and outside of the profession, by their seductive statements concerning the cure of cancer by sera, by diet, by salves, and other simple methods induce many people to try such procedures until the disease has reached a point where it is hopeless. The more the medical profession attempts to instill the necessary knowledge into the public, the more these people advertise their wares. By featuring the unpleasant and mutilating aspects of surgery they attempt to push forward their own treatment merely for the abstraction of money from the unfortunates with whom they deal. They call attention to the fact that the

XUM

recorded death-rate from cancer is increasing, and draw from this the unjustifiable conclusion that surgery is a failure. Some of them pretend to join with us in propaganda in order that they may fasten their clutches upon the unfortunate who do not know the difference between a good physician and a bad. They propound weird theories concerning the causation of cancer in order to devise and market drugs, sera, or vaccines, which if the theory be accepted have some hypothetical value. The only answer is unwearying effort in placing before the public the true facts concerning the disease. Authoritative statements must be issued by the leaders in our profession and spread broadcast either through the press or in pamphlet form to reach those whose only medical information is obtained from the handbills of the quack. It is perhaps a disheartening and disillusioning work, it requires sacrifice of time and a disregard of some of the rules hitherto held as essential to the ethical health of the profession; it will have to be continued year after year because a new generation arises which needs education, but remember, it will result in the saving of many lives. One of the first results of a nation-wide propaganda will be an increase in the recorded deaths from cancer, because attention will be directed both by the public and by the physician to the frequency of the disease, thus more correct diagnoses will be made and reported in the death-rate statistics. This, of course, will give the quacks additional ammunition, but will also be the best demonstration of the effectiveness of the efforts of the American Society for the Control of Cancer. A fall in the death-rate will only occur when an immensely greater number of people apply early for surgical treatment.

The real justification of a Cancer Week lies in the well known law of crowd psychology that a campaign of information can only be put over by inciting enthusiasm and special efforts over a short period. It is not only difficult to be enthusiastic all the year around, but it is far more difficult to interest people for that period; yet by concentrating our efforts on obtaining all possible publicity, and by freely discussing all of our questions during one week in the year, we can make an impression which we never could by diluting our energies throughout a longer period. And while in Cancer Week our chief efforts are to be toward the education of the laity, it is also an admirable time for us to clarify our views concerning the best methods of treatment, and their value from a medical point of view, and this is my theme to-night.

The greatly increased interest in the treatment of cancer is not entirely due to the fact that the recorded frequency of the disease shows a great increase. Another factor has played an important rôle, and that is the natural aversion of patients to surgical operations. This has not only rendered them always an easy prey for the quacks who promise "a cure without the knife," but has caused far more public interest in the radiation therapy of cancer than the results would otherwise have warranted. The dramatic circumstances which surrounded the discovery of radium and the extraordinary phenomena which accompany its disintegration and its biological action on the tissues, afford an easy explanation for the widespread interest in what the French call "Curie-therapy" of cancer. This interest has been fostered by emotional and uncritical workers in the field, who have made statements which, to put it gently, are optimistic. Those who have radium to sell naturally have not been slow to seize the opportunity to use modern methods of publicity in the disposal of their goods, and in this field they have been cordially seconded by the newspapers, who feature all the spectacular results and omit to publish the fatalities. The radium enthusiasm has now about run its course. The price has fallen more than a third, owing to a variety of causes, one of which is a buyers' strike. No physician wants to sink a large portion of his capital in the purchase of a substance which, it is now realized, has only limited capacities in the most frequent types of tumours which he encounters, that is, the tumours of the gastrointestinal tract. The dermatologist will always have need of a moderate quantity of radium in order to treat with comfort and facility certain of the superficial, semi-benign tumours of the basal cell type. Gynaecologists will always need a few hundred milligrammes to palliate inoperable cases of carcinoma of the cervix, and those institutions whose endowment permits will unquestionably employ large quantities of radium in the form of emanation needles in the palliative treatment of many inoperable tumours. But the high optimism of the past few years is being replaced by an extreme and unjust pessimism. Although radium may not cure many patients with cancer, it is to-day a most valuable adjuvant to surgery and a useful palliative in inoperable cancer. What its future accomplishments may be is futile to attempt to prophecy.

But the surgeon who has in his possession some $5,000 worth of radium, bought in a moment of enthusiasm, is now gladly selling the substance at half the amount paid for it, for he has found that the insertion of this quantity into a rectal tumour may produce tenesmus, but it does not cure the cancer, and that there are few fields, except that of dermatology, in which fifty milligrammes of radium have any real value.

With the waning of radium enthusiasm there has come a new wave, chiefly dependent upon propaganda from some German clinics, concerning the extraordinary effectiveness of x-rays especially such x-rays as are produced by machines delivering currents of voltages in excess of 200,000. The sober and more experienced operators, both in Germany and in this country, have been slow to accept the fantastic claims of a few of the German clinics. I have been able to show by experiments on mouse tumours that the killing of a neoplasm by x-ray is not a function of the voltage, but all tumours are killed by the same multiple of a skin erythema dose, which is the limiting factor in the treatment of human beings. The only advantage then of high voltage x-ray is the greater penetration which the short wave lengths produce in the tissues and the greater amount of scattering of the rays which plays an important part in the dose received by the deeper structures. The points of superiority therefore lie in physical reasons, not in biological ones, nor was any other effect to be expected, for if radium has not worked miracles, why should the x-ray produced at lower voltages than the radium or gamma rays accomplish them. While there are therefore sound physical reasons for the employment of voltages of 200,000 and over, there are many practical difficulties in the way of the effective use of such machines, the chief of which is the short life of x-ray tubes running under these conditions. Indeed, the tube replacements become so excessive that the cost of radiation with a high power x-ray machine is approaching that of treatment with radium. This factor is making itself felt even in those clinics abroad in which the use of higher voltages was first advocated, and private information from a number of sources has reached me that many of the operators are now using not to exceed 180,000 volts in order to obtain a reasonable tube life, and thus avoid excessive overhead charges.

But to return to our patients. All the radiation publicity has resulted in one unfortunate situation. As soon as a diagnosis has been made of a malignant growth, patients with operable growths often insist that radium or x-ray be given, and many nowadays are refusing surgery even when frankly told that the results of radiation are far less certain than complete removal.

The surgery of borderline cancer is indeed a difficult question, and requires great knowledge of anatomy, a knowledge of the most frequent distribution of tumour particles through the lymph channels of the operative field, a willingness to spend hours in prolonged dissection, and often a full appreciation of the fact that with the utmost efforts the results may turn out to be disappointing in the end. It is a temptation, therefore, to refer such borderline cases to the radiotherapeutist in the hope that he can accomplish something which the knife will not. Unfortunately hope never cured a cancer.

A satisfactory analysis of the surgery-radiation situation requires a certain amount of classification of types of neoplasm and their regional distribution. In my belief, with the exception of the basal cell tumours of the skin, all easily operable carcinomata should be removed by the knife or some form of cautery. All inoperable cases should immediately be transferred to the most competent radiotherapeutist within reach, to be treated as he sees best. In passing, it may be said that it is wiser for the surgeon not to tell the patients too much about a method of therapy, the details of which he may be ignorant. I have seen many a patient terrified and avoid post-operative treatment for months on being told by the surgeon that their x-ray exposure would be four or five hours in length, and that they would suffer from nausea and vomiting and collapse for weeks with probably a transfusion at the end to prevent death, he having extracted this information from a couple of recent German articles on the subject. As a matter of fact, when some of these patients did reach the x-ray clinic they were in such a condition that long raying would have been criminal and useless. The administration of a large dose would merely have added another fatality to the hospital records. Patients with advanced cachexia, with tumours which have involved blood vessels or vital organs should not be submitted to radiation. It only hastens their death, or if radiation is given, it should be very small in amount. Extensive bone metastases usually are a contraindication to heavy radiation. Small doses relieve pain and comfort the patient, but large doses are apt to damage the already severely

XUM

compromised bone marrow. Operation then for the operable and radiation for the inoperable.

What then should be done with the great group of borderline cases? This important question may not be settled for many years. If radium or the ultimate ultra powerful x-ray apparatus ever show that they can produce a certain number of cures in borderline cases surgery should cry "hands off," because operative procedure under such circumstances is too often unsatisfactory. In the present state of our knowledge, my opinion is that the question has to be answered individually and entirely by the situation and nature of the growth, and by the facilities which exist for treatment. If the surgeon is extremely competent, it would be wise for him to do as much as he can, trusting to post-operative raying to hold any of the tumour in check. But poor x-ray is worse almost than poor surgery for it stimulates the tumour to more active growth. In tumours of the gastrointestinal tract palliative surgery is far more important than radiation. Everyone has seen patients with carcinoma of the rectum go for years after a colostomy. Such tumours are but little affected by radiation or even by the insertion of radium needles. The tumour is often reduced in size and excellent palliative results obtained, but a cure cannot be expected. Carcinoma of the stomach is the most unsatisfactory field for radiation therapy. In my opinion gastroenterostomy in a borderline case is far better than radiation. In fact, I question whether radiation, even post-operative, of a stomach carcinoma, is justifiable. The close proximity of important and sensitive organs renders raying impossible in many instances. The nausea and vomiting prevent the patient from recovering his nutrition after the operation, and I believe that in most instances radiation treatment hastens the death of a patient with a gastric carcinoma. In borderline carcinoma of the breast I personally believe that the best results are obtained by as extensive surgery as is possible, followed by very heavy post-operative raying, the treatments being given in small series of four or five exposures, with considerable periods of rest between in order that the patient may recuperate from radiation anaemia and other depressing effects of the raying. The periods of radiation with gradually increasing intervals should be employed for at least a year and preferably two if the patient will consent. I have never seen a skin recurrence in any patient after removal of a carcinoma of the breast in whom satisfactory radiation therapy had been employed. Those patients who have shown local recurrences have been of the highly neurotic type in whom it is impossible to give sufficient doses of radiation. They are so upset and nauseated by even moderate doses of x-ray that it is impossible to give them treatment. When the tumour has returned locally, especially if it is attached to the bone of the sternum or ribs, the problem is far more difficult, and I doubt if any patient will survive such invasion. The tumour may be held in abeyance for a considerable period, but sooner or later involvement of internal organs takes place, and the end is not far distant. Mediastinal metastases are of course incurable. It is impossible for the patient to survive the necessary dose required to destroy cancer in the depths of the thorax, but all of these people should be treated by x-ray, for often an astonishing amount of comfort and apparent prolongation of life is obtained, even in those whose pleural involvement is demonstrated by the presence of a recurring haemorrhagic exudate. The fluid should be drawn off, and the radiation begun again as soon as the patient's strength is sufficient. The cough is often relieved greatly by radiation, and I am sure that life is prolonged for a considerable time under more comfortable circumstances than if nothing is done.

Another group of carcinomata which are always inoperable or borderline are those of the bladder and the prostate. Squier has reported an extraordinary series of carcinoma of the bladder with some thirty per cent. cures at the end of three years. This high figure is probably only an example of what can be accomplished by extreme skill and specialization and will hardly be duplicated by the general surgeon. If there is no obstruction I think the bladder tumours should be destroyed as far as possible by the high frequency spark, and the patient then subjected to heavy radiation with x-ray without opening the bladder. I had some extremely satisfactory results under these circumstances. If there is obstruction, a suprapubic cystotomy should be done and as much of the tumour removed as possible by any suitable means, and radium needles inserted into the base. A sharp cystitis is inevitable, but good palliation is obtainable in a small proportion of instances.

In carcinoma of the prostate, in which obstruction is not present, I have had some extraordinarily satisfactory results by repeated radiation without opening the bladder. Some of my pa-

tients are still symptom-free at the end of a year, although when their radiation was begun they were in a very serious condition. They gained in weight, and have gone back to their occupations apparently in full health. How long this condition will continue I have no means of telling. Some of these carcinomata, however, do badly from the start, and nothing can be gained by radiation in any form. If obstruction is present of course cystotomy has to be done. Whether better palliation is obtained by the insertion of a moderate amount of radium in the form of screened needles, or whether it is better to ray these patients with high voltage x-ray, I am not prepared to state. Those who use radium are still at variance as to the best technique, and freely acknowledge that no cures have been obtained. On the other hand, I have seen excellent palliation by the use of x-ray alone. As a rule, the patient suffers less from the x-ray than from the radium. The latter is apt to cause a good deal of tenesmus and bladder inflammation which does not accompany the use of penetrating x-ray.

The borderline and inoperable carcinomata of the oral cavity are best treated with radium in the form of needles. X-ray fails here because of the mobility of the part, and the difficulty of applying a sufficient dose to produce an appreciable effect. Most of these tumours are highly resistant to radiation and require a large number of erythema doses to kill any portion of them. This obviously necessitates the use of embedded radiant material. Much better effects are obtained by not attempting to do too much. A good many patients have been treated with overdoses of radium or x-ray in order to attempt a cure. It is better to frankly acknowledge that they cannot be cured, and that only a sufficient amount of radium be inserted to cause shrinkage and regression of most of the tumour. In these oral carcinomata the lymph-nodes of the neck should be removed, whether they are apparently involved or not, for this prolongs the life of the patient. When the cervical nodes are involved the tumor particles which they contain cannot be destroyed by radiation.

The treatment of the bone sarcomata is still a matter of discussion upon which we will have to learn much more than we now know before the final determination of the proper method of treatment is obtained. Some of the German operators are inclined to recommend x-ray; others feel strongly that surgery should be the method of choice in all operable cases. Much confusion has arisen because of the inability of the pathologist to determine from the microscopic picture the degree of malignancy of the tumour. Some of the bone tumours are apparently more nearly related to inflammatory processes than to the true neoplasms. Some of them can be cured by local excision, and these need nothing but post-operative raying with x-ray in order to keep down any return. Other tumours of almost exactly similar microscopic morphology are malignant and capable of metastasizing to distant organs. These should be treated by a high amputation whenever possible, but obviously the lungs should first be demonstrated to be free of metastases. I say this with full knowledge of the fact that the reports of the Codman Committee have shown that astonishingly few cases of bone sarcoma have been permanently cured by surgery. But if they have not been cured by surgery, neither can they be cured by radiation, for this group, especially the osteo- or chondrosarcomata, are so highly resistant to any form of radiation that their growth is as often stimulated as it is inhibited even by large quantities of inserted radium or by intense high voltage x-ray.

A rare group, related to the myelomata, and described by Ewing as endotheli- -ata, seem to be susceptible to radiation, but as these tumours are frequently multiple, radiation is useless unless it can be shown that only a single focus exists. The lymphosarcomata are described in the textbooks as extremely susceptible to radiation. In many instances they are, and a few reported cases of five years' cures can be found in the literature. This means that the tumour was entirely confined to one area. The multiple cases are, of course, hopeless, though the dyspnoea due to intrathoracic pressure can often be removed and the patients kept in fair health for a year or two by continuous raying. Some patients however do badly from the first; the tumours are not at all susceptible, and no benefit is obtainable by even the most intensive radiation. Some of the lymphosarcomata of the intestine yield in a very satisfactory manner and the life of the patient is unquestionably prolonged; others do very unsatisfactorily, and but little is gained by treatment. The microscopic appearance of the tumour offers no clue as to its biology, as growths of exactly similar morphology behave in an entirely different way under radiation.

Pre-operative raying in operable cases and in borderline types has been much discussed, and is being widely tried out. I do not personally

believe in it, for the reason that if any dose sufficient to affect any proportion of the cancer cells is given, the skin is necessarily damaged, for every radiotherapeutist knows that to affect such subcutaneous nodules a dose of at least an erythema must be given. An erythema dose, however, often prevents full healing of the operative field, and therefore, in my opinion, should not be employed. In certain regions I have tried heavy pre-operative raying over circumscribed tumours, with the idea that it might be possible to sterilize the neoplastic cells. The operation must be done within a short time, not to exceed forty-eight hours after the exposure, and the skin over the radiated area excised. Such treatment is very rarely possible in any situation except in small tumours of the breast and those without extensive glandular involvement, for the glands of the axilla cannot be radiated sufficiently to do them any damage; otherwise healing will not occur at all in this region. But if the tumour is small, and in the centre of the breast, the area should be marked off with silver nitrate, through which five or six skin erythema doses can be given. In no other site, in my opinion, is pre-operative raying justifiable.

On the other hand I believe in thorough post-operative exposures with x-ray in all instances. Experimental work on animals has shown that small metastatic or inoculated growths are very much more susceptible to radiation than the primary tumour. Therefore while we should not ray operable primary tumours, it is reasonable to assume that tumour cells left in the tissues may be destroyed before they have a chance to grow to any extent. This should be done with high voltages and heavy filtration with copper or zinc to get full penetration to the layers under the skin. It should be repeated, as I have described for a carcinoma of the breast, for a year or more, until chance of local recurrence is reduced to a minimum. Such post-operative radiation is most effective in cancer of the breast. It can, however, be applied in tumours elsewhere, as, for example, the bladder, the neck, all skin tumours after excision, sarcomata, both of the subcutaneous tissues and of the bone. The regional glands in the groin or the retroperitoneal region should be rayed after the excision of testicular tumours or sarcomata of the extremities. While melanosarcomata are, as a rule, extremely resistant to radiation, I have seen some astonishing results, one case now being alive four years after operation, though a few melanotic tumours reappeared within the first year. These disappeared under radiation, and the patient is at present in good health. This, however, is extremely exceptional, and most melanomata are hopeless. In this connection I should like to state that pigmented moles in any part of the body which are subject to irritation should be removed and removed by wide excision. They should never be treated by radium or x-ray, nor by caustics, freezing, or the cautery. Such procedures seem to start up malignant processes in hitherto quiescent moles, with rapid and hopeless involvement of the internal organs.

The rare mixed tumours of the parotid, if they do not contain cartilage, and have not yet developed sarcoma or carcinoma, are fairly sensitive to radiation, but if they can be removed without damage to the facial nerve, it is wiser to excise them and then ray afterward prophylactically. Cases in which excision implies serious damage to the face may be rayed for a time; then if they do not yield surgery must step in.

Some interesting results have been seen in the post-operative treatment of papillary adenocarcinomata of the ovary, whose exact malignancy is still somewhat in question, but I have seen a number of patients who have been free from symptoms for a long time following the use of large doses of x-ray. Other patients whose tumours presented a similar morphology died within a few months with extensive peritoneal involvement, despite radiation.

Carcinoma of the cervix is a field in which possibly radiation may compete with surgery. At the present time the most competent surgeons believe that the operable cases should be operated upon, but I think that the borderline types, and of course all of the inoperable cases, should be treated by radium. Astonishing palliative effects are obtained, and a few advanced cases have gone four or five years after radium treatment without a recurrence. This is unquestionably due to the favourable anatomical situation of the uterus, which permits the insertion of large quantities of radium into the body of the organ without much damage to the surrounding tissue. Needles also can be placed in the cervix with very excellent effect. Accidents, of course, occur, such as perforation of the neighbouring intestine with fatal peritonitis, or by the production of vesico-rectal fistulae. Where the bladder or rectal septum is involved, the case is usually hopeless and large doses should not be given in order to avoid the production of a fistula. The treatment

should be done in a single sitting, and not repeated. If radium is again inserted after a few months, the scar tissue which has been produced by the first radiation is so poorly nourished that serious sloughing, prolonged ulceration, and a fistula is often the result.

Carcinoma of the body of the uterus should be treated by hysterectomy, as the results are extremely good, the tumours apparently being of a low grade of malignancy, and their metastatic involvement of the surounding viscera being very late in occurrence.

The only other field where radium competes with surgery is in the basal-cell tumours of the skin. These often yield to doses not in excess of an erythema, and most of the small tumours can be permanently cured by a single application of a single dose of either x-ray or radium. About ten per cent. of these tumours however contain squamous cells and it is wise when in doubt to excise a piece of the tumour before beginning treatment. If squamous cells are present the dose must be at least double that of a simple type of basal-cell epithelioma, and excision is wiser as the tumours are extremely apt to recur. When a recurrence takes place after radiation it is very insusceptible to further treatment of the same type.

To sum up: Operation in all operable malignant growths. To treat such a growth by radiation methods assumes that we know the exact amount of such radiation necessary to kill all of the cancer cells. This we positively do not know at the present time for human tumours. The assumption that if a part of the tumour is killed by radiation that the body cells will destroy the rest is pure phantasy, and has not the slightest foundation, either in clinical observation or in experimental work. If the body tissues had any power to destroy carcinoma cells, a malignant tumour would be destroyed in its inception, and the fact it is not, is a definite proof of the lack of any such protective capacity. In borderline and doubtful cases, a combination of radiation and surgery is often the most effective. The type of radiation to be used depends upon the site of the tumour, the extent and nature of the surgery also upon the same factor. Inoperable carcinoma should be treated with radium if small and fairly well localized; if extensive, should be treated by x-ray. Operation is perfectly useless and tends to make the patient worse rather than better. In many cases no palliative effect is obtained by any form of radiation. In others fortunately the tumours seem to be of low biological resistance, and remarkable palliative effects are obtainable, which may last for a considerable period of years, accomplishing a result in a condition before which surgery is powerless.

The hope of making extensive inroads into the death-rate of cancer lies therefore in publicity, to bring the patients early to the surgeon. The task of the surgeon is to improve his technique and extend his operative field so that all of the tumour can be removed as promptly as possible. If this cannot be accomplished, we have in radiation therapy an extraordinary palliative method, which prolongs life and adds to the comfort of the patient. If no cures were ever obtained by either radium or x-ray, their use would be justifiable on account of the extraordinarily valuable palliation which they often offer, and which exceeds that obtained by any other method.

The Significance of Lymphatic Involvement in Infections.—Particular attention is directed by William J. Mayo, Rochester, Minn., to the fact that not all enlarged glands associated with cancer, especially in septic situations, such as the gastro-intestinal tract, are due to cancer. The glands may enlarge if a benign lesion, such as a chronic ulcer, precedes the cancerous change. Chronic sepsis involving the glands is not infrequent; the glands may become so extremely hard as to appear malignant. This condition is quite constant in cancer of the large intestine. Postmortems show that half the patients who die from cancer of the colon have no cancerous involvement of the lymphatic glands at the time of death, although the glands may be greatly enlarged from sepsis. I mention this because I have operated on many patients whose condition following exploration has been pronounced inoperable on account of glandular involvement, and I have been able to resect and definitely to show that the glands were septic, not cancerous. These patients have remained well for long periods. Microscopic examination of the glands will be necessary in many cases to decide the question.—*Jour. Am. Med. Ass.*, Jan. 27, 1923.

XUM

THE CONTROL OF CANCER*

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THE American Society for the Control of Cancer was formed in 1913. The main object of the Society has been to educate the public concerning cancer and to impress upon them the fact that it is a curable disease if proper treatment is undertaken early enough. There is no disease which has been studied more intensely as to etiology, pathology, clinical course, and treatment than cancer. All authorities agree unreservedly that cure may be effected if the disease is removed by surgical means at a sufficiently early stage in its course. Speaking of cancer of the breast in a recent article, that veteran surgeon, Dr. W. W. Keen, of Philadelphia, makes the following statement as the result of his long, varied, and extensive experience. He says,—"If every woman who found a lump in her breast would consult a surgeon at once—that is to say within forty-eight hours, if possible, but in any case within a week—I am sure that eighty-five out of every one hundred, and it might well be ninety out of every one hundred, would *be* cured and *stay* cured. So cancer is curable—provided you consult a good surgeon *at once*. Remember that, when you find a lump already formed, the disease has been at work for weeks, and it may be for three or four months, before a discoverable lump has been formed." Over against this statement by Dr. Keen we may place in contrast the published end results of authors who have studied a very extensive series of cases and who cannot claim a larger number of cures than from thirty-five to thirty-seven per cent. of the patients who come to the surgeon to-day for treatment. The conclusion is obvious, namely, that patients do not reach the surgeon early enough and that by far the best prospect of controlling cancer and saving life, sacrificed to-day unnecessarily, is by bringing the people who are victims of this dread disease under skilled treatment at the earliest possible stage of its development.

Statisticians show us that one out of every ten persons over forty years of age die of cancer. Many of these deaths are preventible and will be prevented if our efforts are successful in persuading the victims of cancer to seek professional advice early. It is therefore incumbent upon us to encourage the dissemination of exact knowledge among the laity dealing with the facts regarding cancer. The public should be taught that cancer is curable but that cure in the vast majority of cases is dependent upon the employment of suitable treatment at a very early stage in the progress of the disease.

The work of the American Society for the Control of Cancer is to be commended. Under the direction of its able President, Dr. Charles A. Powers, of Denver, it is performing a task which will undoubtedly prove of great service in the community. For the campaign of 1923 this Society is expending $60,000. The fight against cancer, inaugurated by the society in the United States has been extended to embrace Canada and more recently Great Britain. Last year there was instituted "Cancer Week" when, in an intensive fashion, a special effort was made to instruct the public. The Annual report showed that in the United States and Canada 500,000 people heard lectures and 5,000,000 pieces of literature were distributed during cancer week. Various clubs and fraternities had special addresses and the lay press devoted much space to the subject and thus assisted very greatly in the life-saving work. Cancer week for 1923 begins on November 12th and, it is believed, much more systematic and much more extensive work will be done than was accomplished last year. It is hoped that all over this Continent and in Great Britain valuable service may be rendered the public and many victims of cancer, over this wide area, may be saved, by this agency, from the ravages of this dread disease. A special meeting of the Academy of Medicine, Toronto, is convened during this week for the special study of cancer: addresses are being made before various clubs such as the Canadian Club, the Empire Club, the Kiwanis Club, etc., the local Press are devoting a considerable amount of space to the subject and it is thus hoped that

*Read before a special meeting of the Academy of Medicine, Toronto, November 14th, 1922.

we may be doing our share in work which must be considered of great national importance.

The responsibility of the Press in this matter cannot be overestimated. The whole-hearted desire of the Press to assist in such a campaign is demonstrated by their ready response to a request for space to publish articles dealing with the subject. On the other hand, beyond the slightest doubt, the most powerful agency today in frustrating our efforts to control cancer is the advertisement of quack remedies and the exploitation of so-called "cancer-cures" in our daily press. These publications lead to a loss of human life by cancer which is preventible. We in the medical profession should unite in a combined effort to convince the lay press of their grave responsibility. In many instances valuable lives are sacrificed as the direct result of articles appearing in our daily papers. The evidence is overwhelming to show that the greatest advance in the treatment of cancer in the last decade is found in the improved methods for the early recognition of the disease and in the immediate removal of the cancer growth by surgical operation. On the other hand the most powerful agency to frustrate our efforts in this regard and to lose time, so vital for the individual, is found in the articles and advertisements of remedies which are not only ineffective in the attempt to eradicate cancer but may actually stimulate the disease to increased activity. The unfortunate victim of such press propaganda is lulled into a fool's paradise, eagerly laying hold of the plausible promises of relief, they subject themselves to treatment which does not cure, they suffer unnecessary pain and anxiety and finally when surgical advice is sought it is too late because the disease has now progressed beyond the limit which makes it possible to save life. Let us therefore appeal to the press to aid us in our endeavour to advance medical science in this regard.

There can be no doubt of the fact that patients suffering from cancer are brought under treatment at an earlier stage than formerly. Recently I read a paper upon cancer of the breast and I had occasion to compare my statistics published in a paper ten years ago with those compiled for my cases of the last decade. The comparative study showed a very marked improvement in this regard in my recent series as compared with the former series of cases. This is indicated in the following table:

AVERAGE DURATION OF DISEASE AT TIME OF OPERATION

Malignant Growths	*Old Series*	*New Series*
Average Duration....	14.375 months	12.75 months
Those who came to operation under one year.....	54.5%	76.8%
Those who came to operation under six months.....	35.4%	53.6%
Those who came to operation under three months.....	19.0%	37.5%
Those who came to operation one month and under one month from initial symptoms.....	8.4%	27. %

Many of us can remember a time when a practitioner would wait for what he termed "certain signs of malignancy" in a breast before a surgeon was consulted: these signs would consist of a growing tumour with palpable axillary glands, retracted nipple, adherent skin, etc. Now practitioners are on the alert to detect the earliest possible signs of malignancy not only in the breast but elsewhere in the body, and use every effort to determine beyond shadow of doubt the nature of any tumour. The profession is alive to the importance of these matters but our duty is to instruct the laity to understand the importance of getting expert advice without delay in individual cases.

It is not the purpose of this communication to deal with the therapeutic measures necessary to eradicate cancer. Generally speaking the writer believes that the early removal of cancer growths by operation holds out by far the best prospect of permanent cure. The value of radium and deep x-ray therapy is attracting much attention at present. There is sufficient evidence to show that these agencies are undoubtedly potent factors in the control of cancer in certain forms. Earnest and skilled workers in this field are accomplishing promising results but the time, in our opinion, has not arrived to state the place which this therapeutic measure should hold in the remedial measures employed for the cure of cancer.

One cannot overestimate the important rôle played by the profession in preventive medicine in recent times. A brief summary has recently been made by Dr. Frank Billings in the following paragraph published in a leaflet written by him for Cancer Week. Dr. Billings says as follows:

"With the necessary co-operation of an enlightened educated public, the application of known and tried reliable means of prevention has lowered the death rate of tuberculosis of the lungs, the great white plague, fifty per cent. or more, and has well-nigh eradicated typhoid fever, typhus fever, yellow fever, diphtheria, cholera, malaria, small-pox, bubonic plague and other diseases

which have killed thousands upon thousands of people in the past. Through the efforts of the medical profession, nobly supported by philanthropic citizens in the education of the public, the death rate among infants and children due to diarrhoeal and other diseases, has fallen in many communities to a fraction of the former mortality. All this has been accomplished by the increasing efforts of physicians and public health workers in educating the public and in the rational application of reliable methods of disease prevention, and in the utilization of scientific means of treatment."

To-day we are fighting the plague of Cancer. The most important piece of strategy in that fight to-day is the education of the public, in order that individual cases may be brought early for professional advice. This we feel assured will prove the most effective means of saving life and ameliorating suffering in the unfortunate victims of this disease.

THE CLINICAL DIAGNOSIS OF SMALLPOX AND CHICKENPOX

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SEVERE smallpox is slowly returning to the civilized world, after twenty years of "mild smallpox"; so mild that official reports have at times shown more deaths from chickenpox than from smallpox, although both were prevalent. Recent advices from various places in Europe, England, the United States, and even from favoured Canada, show a recrudescence of the more fatal "severe" type. Not only is it likely that before a decade has passed, the prevalent type will be the severe type, but also that the incidence of the severe type will be great, for the mildness of the mild smallpox has resulted in a great relaxation of vaccination; the public generally expressing the view that they would rather have smallpox of the mild type than be vaccinated by the old scarification methods. This argument, whatever its weight may have been in the past, now fails on both counts, for the mild smallpox is becoming more severe, while the new (Canadian) method of vaccination is less severe than the old method. For these reasons those members of our profession not now expert in the matter should become familiar with the diagnosis of this disease; and all of us should use the Canadian method of vaccination; which, equally efficient with the old, is far less objectionable in application; far safer in outcome; much quicker, much simpler and requires no dressings.

Mild smallpox is pure typical smallpox, but is "scaled down" in severity, in the number of lesions, and in duration.* It does not "run to the time schedule" so closely as the more severe forms. The incubation period averages a day or two longer and is slightly more variable. The prodromal stage is often light although also often severe, and is not usually observed to be so closely limited to three or at most four days as in the more severe forms, not infrequently running to five or even six days. The lesions have the same relative distribution, character and stages as the lesions of the severe type, but the number of pustules is likely to be smaller and the duration of the different stages to be shorter. Pustulation of the lesions is moderate, light, or even not appreciable and is not as a rule accompanied by marked secondary fever; crusting, decrustation, scabbing, etc., are relatively rapid in progress.

Too often the attempt is made to "size up" such a case on general principles and to regard it as "not smallpox," merely because the symptoms are mild, the lesions few, and the course short. This policy throws all our expert differentiation to the winds, abandons all exercise of our professional observation and judgment; in short, adopts the lay attitude: "It is too mild for smallpox, and therefore it is chickenpox." As well might we follow the alleged diagnostic slogan of forty years ago with regard to diphtheria: "The cases that die are diphtheria; the others are not."

Recognition of Smallpox. As German measles is to measles proper, as paratyphoid is to typhoid, and as Duke's disease is to scarlet fever, so is chickenpox to smallpox—analogous to it, but wholly distinct from it. Neither ever protects against the other; neither ever produces the other; each breeds true. Clinically, the distinctions between mild cases of these diseases and their

*The fundamental cause of the difference between mild and severe smallpox has been attributed by C. V. Chapin to differences in the virulence of the strains of the smallpox germ; by H. W. Hill to the absence of virulent Streptococci in the mild, their presence in the severe.

corresponding imitators are often somewhat difficult, to those whose experience is limited. Both diseases of each pair require intimate study if reliable results are to be secured in the diagnosis of either. In recognizing either smallpox or chickenpox the most important points to consider are:

1. History of association with frank cases of either disease within their respective incubation periods.
2. Definite history of attack of previous chickenpox, smallpox, vaccination.
3. Date on which the first symptoms appeared.
4. Character of prodromal symptoms.
5. Date on which skin lesions appeared.
6. Location of the first lesions noted.
7. Quantitative distribution of the lesions in relation to the body and limbs.
8. Character of the individual lesions in correlation with the number of days they have been in existence.

In approaching the diagnosis of a doubtful case, the derivation of the doubtful case from, or its ability to give rise to, a frank case, is extremely important, but such evidence may not be available. The history concerning vaccination, the existence or the character of the prodromes, or even the exact date of eruption, is sometimes indefinite or unobtainable. When the diagnosis lies between *mild* smallpox and chickenpox, the history of a previous attack of chickenpox or smallpox is often not very conclusive, since the previous attack, being subject to similar difficulties in diagnosis, may have been itself wrongly diagnosed at the time when it existed. Under such circumstances careful study of the distribution and especially of the character of the lesions themselves necessarily furnishes the critically important data.

In smallpox the worst systemic disturbance and suffering are often found during the prodromes; and improvement, if only temporary, precedes, or follows closely upon, the appearance of the eruption. Severe prodromes may be followed by either mild or severe eruption; mild prodromes, usually by a mild eruption. The extent of the eruption on the face is a fair index of the general severity of the attack. In chickenpox the practical absence of prodromes means that the first appreciable systemic disturbance, if there be any at all, begins with the eruption and continues for a few days thereafter.

In smallpox, itching during the early stages of the eruption is not usually a marked symptom; nor does scratching injure the lesions much, on account of their deep-seated and tough-walled character. Burning rather than itching is to be expected in smallpox, sometimes felt at the site of a coming macule, before the macule itself appears. In chickenpox itching is highly characteristic, and since the relatively superficial and thin-walled lesions are very fragile, they are easily destroyed, not alone by the scratching, but by every form of contact. This early rupture of the lesions is in itself of very strong diagnostic import, pointing emphatically to chickenpox.

In smallpox the thick walls of the pustule prevent its rupture and permit comparatively little evaporation; the pustule, in shrinking, shrinks into the skin, and a hard, opaque, brown, very tenacious scab (the "mahogany plaque") is often formed. This is especially true of the lesions on the extremities, particularly on the palms and soles. In chickenpox, the vesicle, if not wiped off or collapsed early, shrinks by evaporation to a brittle but still somewhat elevated cap, very easily broken off or dislodged. In mild and abortive smallpox and in varioloid similar caps are at times found *on the body*, as distinguished from the palms and soles.

Differentiation of Lesions. On general survey the smallpox patient shows round lesions only, when the lesions are discrete; the shapes of confluent lesions depend of course upon the number and position of the round lesions forming the margins of the confluent area. The lesions are uniform in size, are not crenated at the margins, and are unbroken. They are chiefly on the *face and limbs*. The chickenpox patient shows round *and* oval lesions, varying widely in size, usually crenated at the margins, and almost always more or less broken or disfigured; they are chiefly on the *face and body*.

On close examination the smallpox lesion is found relatively small, round, and, in the papular, vesicular, and pustular stages, very firm. It is deep-seated; the vesicles and pustules are therefore thick-walled, and consequently rupture only with great trauma; thus, very firm pressure and hard rubbing with the ball of the finger scarcely impresses the smallpox papule, vesicle, or pustule at all. Of course it is possible to break the smallpox vesicle or pustule with the fingernail by firmly digging into the margin of the elevation. When this is done, the thick epithelial wall of the vesicle or pustule comes away, maintaining its shape, like the top of a neatly cut egg. In contrast, the chickenpox vesicle,

whatever its size, is like a half-balloon, thin-walled, tense, with clear contents, giving a "pearly" appearance, and is quickly broken down at the slightest touch, the collapsed wall being soft, flimsy, shapeless—a mere rag.

Naturally, this differential test (ease of rupture of vesicles) can be made use of only if intact vesicles can be found. But intact vesicles are rare in chickenpox, if the eruption is of more than three or four days' standing, because the chickenpox vesicles are so delicate that they are ruptured by the friction of clothing or other accidents, as well as by scratching. Hence as a rule, very few or even no distended vesicles can be found in one-crop chickenpox after the first two or three days, the lesions by that time being either completely decapitated, showing merely small raw or crusted pits on the vertex of low, round or oval elevations; or else existing as pits of the same character, *overlain* by the macerated opaque, white, shrivelled, wrinkled, empty, easily brushed off epithelial rag, representing the remnants of the previously distended and thin and transparent walls of the vesicle, now ruptured. Hence, the very fact that plentiful unruptured vesicles present themselves for examination is itself presumptive of smallpox, although this condition may be found in chickenpox at times in the first day or two of any one of the successive crops of the eruption. On the other hand the presence of plentiful broken-down vesicles is itself practically conclusive of chickenpox. (*Note*—I have seen a plentiful crop of chickenpox vesicles on the back which had been evacuated of their contents wholesale by rubbing the back firmly with oil or vaseline, at the height of the vesicular stage, to relieve itching. The oil or vaseline, rubbed in as the vesicles were emptied and smoothed down, had kept these "epithelial rags" in place and prevented them from drying out. The slippery oil prevented the examining finger from securing a foothold to dislodge the rag; and the vesicles, being already empty, could not be further emptied by pressure. This condition had led to the diagnosis of smallpox, on the ground that the "vesicles" were firm and resisted the efforts to break them down! It must be confessed that at a little distance and at the first glance, the smooth, yellowish white caps, lying on the summit of the engorged bases of the vesicles, would have suggested smallpox, but for their irregularity in size and shape. On close examination the differentiation was easy.) The reddened areolae which are found surrounding the pocks of both diseases are often similar, but the smallpox areola (until secondary infection late in the disease may alter conditions) is generally narrow, and since it surrounds a round lesion, is generally circular. The chickenpox areola is usually wider, and more irregular in outline; the depth of colour diminishes more gradually towards a more diffuse edge; and when the lesions are oval the areola corresponding to them is oval also. Finally the chickenpox areola frequently, although by no means invariably, shows irregular flaming offshoots, which give the whole the appearance of a bright red ragged star.

Some prevalent misconceptions concerning the differential diagnosis are:

1. That chickenpox occurs only in children. It is true that the majority of the chickenpox cases occur before adolescence is ended, but cases in young adults and even in old people are by no means uncommon. I have seen it in a woman of fifty-three; and in many young adults of both sexes.

2. That smallpox does not invade the scalp. It is true that chickenpox usually invades the scalp while smallpox sometimes does not, but the point is by no means final or even presumptive evidence.

3. That smallpox alone invades the palms and soles. It is true that smallpox almost always invades the palms and soles, or both, but chickenpox not infrequently shows one or more palmar or plantar lesions.

4. That smallpox alone presents lesions in the mouth, pharynx, etc. The fact is that almost every case of chickenpox as well as of smallpox shows some mouth or pharyngeal lesions.

5. That smallpox lesions are umbilicated (dimpled), while chickenpox lesions are not. This last statement might be made almost without reservation, if confined strictly to the *vesicles* of the two diseases. But the umbilication of the smallpox vesicles disappears on pustulation (perhaps by liquefication of the internal restraining bands which are supposed to produce the "dimple"), while the subsequent drying out of the pustule reproduces a pseudo-umbilication in the late pustular stage. On the other hand the chickenpox vesicle, being swept off or broken, leaves the slightly pitted summit of the papular base of the vesicle exposed. On drying, and especially after crusting, the lesions thus evolved often present a certain dimple, sometimes mistaken for umbilication. This "umbilication" in chickenpox is obviously, from the above descrip-

tion, wholly different in stage, cause, and structural features from the true umbilication of the smallpox vesicle, and should never be confused with it. It is not even analogous to the secondary umbilication of smallpox, for in the latter the epithelium covering the pustule is still intact, although dry. It is stated by J. M. Armstrong, of St. Paul, that smallpox *papules* under moderate magnification show umbilication also. Occasionally, one or more chickenpox vesicles, at an early stage, may show a light dimpling, or even umbilication. A diagnosis should never be based on the condition of one or two lesions, but on the prevalent type. I have seen what proved finally to be generalized vaccinia, developing eight days after vaccination, diagnosed by high authority as smallpox, and by other high authority as chickenpox, both errors depending on attaching too much importance to the peculiar character of one or more lesions, while overlooking the predominant characteristics of the predominant type.

The respective characteristics of the lesions in smallpox and in chickenpox above described, depend on the relatively deep-seated location of the former in the skin, as compared with the latter. Occasionally chickenpox vesicles of the forehead and especially of the palms or soles, may be found more deeply seated or having over them a tougher epidermal covering than usual and therefore approximating somewhat to the smallpox characteristics. The only lesson of this fact is that the characteristics of the lesions of the face, palms, and soles should not be considered as decisive, when searching for the differential points.

Comparative Natural History of Severe Smallpox, Mild Smallpox, and Chickenpox. The case of severe smallpox will show:

1. An incubation period (*i.e.* from exposure to earliest symptoms—not to eruption) of practically twelve to fourteen days (in mild smallpox twelve to twenty-one days). The incubation period can be determined accurately only in cases where exposure occurs on a known date, with no exposure before or after; provided also that the date of earliest symptoms resulting from such exposure is also definitely fixed.

2. No definite history of previous attacks of smallpox. When mild smallpox has prevailed for years, often confused with chickenpox, and *vice versa*, this history is of little account, especially when the previous diagnosis was made, as often happens, by the laity. Examination for healed pits should be made. Round pits indicate smallpox; oval pits, clean cut, indicate chickenpox. Confluent smallpox may yield pits of irregular shape. In mild smallpox, and in chickenpox, pits of any kind may be few and small. Second attacks of smallpox are very rare although they are not unknown.

3. No history of successful vaccination within five to seven years. Careful examination for vaccination scars should be made.

4. Prodromes, lasting generally about three full days, and including headache, *terrible backache*, fever, epigastric pain, chills;—a sudden severe onset. Mild smallpox sometimes presents very indefinite and trivial prodromes. When definite, a history of four days or more of prodromes may be offered. (see 5.) These symptoms mitigate or even disappear before or with the appearance of the eruption.

5. First signs of eruption late on the third or during the fourth day of attack. In mild smallpox the earlier eruption, when sparse, may be unnoticed for a day or so, thus prolonging the observed interval between onset and eruption, which latter may be noticed first as late as the seventh day.

6. Eruption beginning on face and wrists. In mild smallpox, the lesions are sometimes so few that the earliest ones are overlooked until the full crop has appeared.

7. Eruption most profuse on limbs rather than body. In mild smallpox, with sparse lesions, there may be too few lesions to permit any real comparison of relative abundance at different points.

8. Palms and soles nearly always attacked. In mild smallpox, one or two lesions in one palm or one sole may be all that can be found in these locations.

9. Eruption develops in one crop, the lesions appearing steadily for twenty-four to forty-eight hours, the face lesions usually further developed than the body lesions. In mild smallpox, abortive lesions *i.e.* not following out the regular stages, are sometimes found.

10. Lesions round at all stages; margins not crenated; all those of the same stage of development usually of the same size; appear in one crop coming out steadily twenty-four to forty-eight hours; each lesion, typically, passing through four stages.

The stages are: (a) "Flea-bite" macules (spots) each lasting twenty-four hours; these exist alone during the first day of eruption. Before or with the appearance of the eruption, the

systemic symptoms improve; but of course, when the prodromes are exceptionally mild, this improvement can hardly be observed; (b) "Shotty" papules, (pimples), each lasting twenty-four hours, which develop from the macules during the second day of the eruption, the earlier papules therefore co-existing with the later macules. (c) Umbilicated "shotty" vesicles (blisters), each lasting twenty-four to seventy-two hours, which continue to appear as their preceding macules and papules mature, during the third to fifth day of eruption. (d) Firm opaque pustules, each lasting four to six days, which exist in full blossom during the sixth to twelfth day of eruption. With this pustulation, the secondary fever begins; but in mild smallpox pustulation is usually very innocuous and little or no secondary fever is observed. (e) Firm crusts begin to appear about the thirteenth day of eruption; secondary or pseudo-umbilication, due to drying, may be found about this time. (f) Dense scabs and deep-seated, tenacious, "mahogany" plaques—the latter still covered with the original epithelial wall of the pustule, now flattened out again—develop as drying out continues. They are variable in duration, lasting many days or weeks in severe or neglected cases. In mild smallpox the absence of severe pustulation often obviates the formation of the deep-seated tenacious plaques, except in the palms and soles. Those formed are rather superficial and are removable without great difficulty. It is to be noted that as some lesions develop earlier than others it is possible to have, after the first twenty-four hours of the eruption, both macules and papules, and towards the end of the first forty-eight hours even a few vesicles; during the next twenty-four to forty-eight hours, papules, vesicles, and pustules; thereafter, however, vesicles and pustules alone, later followed by pustules and crusts, will be found; finally, crusts, scabs, and plaques, leaving pits as they disappear. In mild smallpox, aborted lesions sometimes add to the variety of conditions present.

11. Pitting, especially following marked pustulation, is deep and permanent; the pits are red for months, then white. Unless extended by impetigo, or fused by confluence, the pits are round. Mild smallpox yields few and small pits only, as a rule.

Prodromal Rashes. During the prodromal stage of smallpox and therefore before the eruption proper appears in its earliest form of macules, there may be diffuse erythematous patches, greater or less in extent, very irregular in distribution, extent and duration, with a tendency to rapid changes. Confusion of these with the rash of scarlet fever may be avoided by noting that the scarlet fever rash is practically never found on the face; and that the scarlet fever rash is composed originally, and always at its spreading edge, of small dots of red, with white skin between. Erythematous rashes are continuously red, *i.e.* not composed of isolated dots. Of course also, knowledge of the systemic symptoms of scarlet fever, the tongue, throat, gland enlargements, vomiting, aid in the differentiation; as also the length of the prodromal period which in scarlet fever is rarely more than twenty-four hours.

Confusion of a prodromal rash of smallpox with the true rash of measles, when it resembles the latter, may be escaped by noting, first, that the measles rash does not develop until the fourth day after the onset of measles, while the prodromal rashes of smallpox develop on the second or third day after the onset; second, that the measles rash will be preceded and accompanied by the coryza, photophobia, bronchitis, etc., typical of measles, rather than by the symptoms of early smallpox; third, by the character of the lesions themselves, which although blotchy in both cases, are raised and palpable in measles, not raised and not palpable in the prodromal rash of smallpox. As in the diagnosis of all infections conveying immunity, the history of a previous attack of scarlet fever or of measles will of course be strong presumptive evidence against these, while the history of previous smallpox or recent (*i.e.* within seven years) successful vaccination practically excludes smallpox.

The case of chickenpox will show:

1. Incubation variable, but from two weeks to eighteen days as a rule (see smallpox 1.)

2. No definite history of a previous attack of chickenpox (see smallpox 2.). Second attacks of chickenpox are even rarer than second attacks of smallpox.

3. A history of successful vaccination within five to seven years, or a definite history of previous smallpox, practically eliminates smallpox, and therefore points to a diagnosis of chickenpox; absence of history of one or other or both of these does not, of course, indicate smallpox, but leaves the diagnosis open to be decided on other grounds.

4. No history of prodromes usually; if any, chiefly in adults, and for not over twelve to thirty-six hours preceding the eruption.

5. First signs of eruption noticed in first few hours of illness, *i.e.*, the systemic disturbance is usually synchronous with or immediately precedes eruption. (But see 4.)

6. Eruption beginning on back, chest or face.

7. Eruption most profuse on the body.

8. Palms and soles with one or two lesions; such lesions are less constant and less abundant than in smallpox.

9. Eruption appearing in successive crops, *on successive* or *alternate* days.

10. Lesions round and oval, with much variation in diameter, even at the same stages of development; margins often crenated (scalloped). Each crop passes quickly through the following stages;—(a) Macules, each lasting a few hours. (b) Soft, superficial papules (pimples), each lasting a few hours. (c) Clear, thin walled, tense vesicles, (blisters), each lasting a few hours. These latter are easily destroyed and leave then "cupped" or "pitted" elevations, raw, red, and weeping, but quickly crusted. When the vesicle is ruptured without total removal of the cap, a white, opaque, shrivelled rag of epithelium, lying more or less loosely over the pit remains. (d) Theoretically, pustules follow. Practically, the vesicles are almost always destroyed before pustulation can occur. But I have seen a vesicle, on the back of a finger, preserved from rupture by a plaster cast, develop into a tense, thin-walled, oval, half-balloon pustule, nearly a quarter of an inch long. (e) Crusts, lasting a shorter or longer time according to treatment, etc. Each crop completes its cycle in two to four days. Because of the rapidity of the maturation of the lesions, even the first day may show all stages from the macule to vesicle, including ruptured vesicles. In the first week macules, papules, vesicles, intact or broken, and crusts, derived from different successive crops, the developed lesions from the older crops, the newer lesions from the later crops, may be found together. Thereafter the earlier forms disappear, and in the second week crusts alone or in great predominance are found. The older lesions are sometimes complicated by presence of impetigo; sometimes occurring as a second, late, infection, but sometimes apparently from a double infection occurring at the time when the chickenpox itself was originally contracted.

11. The pits are few and superficial, often oval. When extended by severe forms of impetigo, which not uncommonly affects chickenpox lesions during and after the second week, the pits may be irregular in outline.

Methods of Vaccination. There are several methods of vaccination, of which the newer method introduced into and used in the Canadian army during the Great War appears to have many advantages. First there is the old scarification method; tedious, painful, and very liable to infection by other microorganisms; requiring also frequent dressing. Second, there is a newer method by a series of linear scratches or superficial incisions just through the epidermal layers and drawing no blood. This is much superior to the scarification method but makes an open wound and is liable to infection. The Canadian method is as follows: The skin is carefully disinfected by soap and water, and alcohol and ether. On this sterilised area the contents of one capillary tube is deposited at three spots, preferably the three angles of a triangle the sides of which are two inches long. By means of a sterilised sewing needle held almost parallel to the skin's surface, six or eight punctures are made through each drop, merely penetrating the outer epidermis. No blood is drawn, and pain is scarcely felt. On completing the punctures the surplus vaccine is wiped off, and the sleeve may be drawn down over the arm again. The after treatment consists in *leaving the arm alone*, without any dressing. Any dressing applied more or less constricts the arm and prevents free evaporation, with the result of inducing more or less maceration and softening of the otherwise stout, firm pustule wall. If left alone the pustule remains intact, drying down to a firm "shoe-button" scab, which drops off when healing is completed.

Persons previously successfully vaccinated or who have had smallpox, will often show red, itchy pimples at the sites of puncture within twenty-four hours. This immediate or anaphylactic reaction usually indicates that the person showing it is immune to vaccination and will not take either vaccine or smallpox. Occasionally "takes" develop a week or two later despite this initial reaction.

Non-immune persons usually show no reaction whatever for four or more days, even the site of the punctures being difficult to locate exactly. About the end of a week however, the puncture sites show macules, quickly becoming papules, vesicles and pustules in due order. The lesions are strong-walled and remain intact, if allowed to evaporate freely. They are surrounded by an areola, and accompanied by tender axillary glands, some fever and other mild systemic reactions, lasting a day or two. As the still intact pustules dry, they contract, forming hard more or less spherical scabs (shoe buttons) which finally detach themselves, leaving a healed depressed base or pit which gradually flattens out.

XUM

SCOLIOSIS OR LATERAL CURVATURE OF THE SPINE

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AN examination of the records of patients treated for scoliosis in any of our hospitals reveals the fact that this is still one of the most discouraging conditions which is met with in surgical practice. Perhaps the failure of surgeons to secure satisfactory results in the treatment of this condition may be attributed to one of two things; first, we know so little about scoliosis, and, second, perhaps we have not sufficiently appreciated the normal function of the parts which are eventually deformed in the condition described as scoliosis.

In the years immediately preceding the Great War general interest was taken in the study and especially in the treatment of this condition, and many articles were written on the subject. Perhaps the most important of these were contributed by orthopaedic surgeons living on this side of the Atlantic, although the contributions of Calvé and other European surgeons have tended to elucidate many important phases of this most obscure condition.

The word scoliosis is derived from the Greek "*skolios*" meaning curved or bent. Usage has confirmed the selection of this word, although it hardly describes the condition, because scoliosis as we understand it to-day, denotes not only a twisted and deviated spine, but a condition of the trunk or the whole body in which each component part has performed a definite rôle in a certain orderly sequence. Scoliosis may be physiological and normal, or pathological and abnormal.

The Effect of Movement.—During the year 1911 an observation was made in Montreal which seemed at the time to be a discovery, yet, "Is there anything whereof it may be said, See this is new? It hath already been of old time which was before us." This discovery was the simple fact that rotation or side-bending of the trunk in one direction causes rotation of the bodies of the vertebrae in the opposite direction. This, with the fact so strongly accentuated by Feiss, that no single part of the thorax moves separately, but each and every part moves together synchronously and has a definite rôle in every movement of the trunk, is of great importance. On movements of the trunk the spinal column, as a whole, becomes twisted and bent. The individual vertebrae are rotated on their axes. The ribs on one side move or change their shape or form whilst the ribs on the other side move and change their shape in a direction or form much opposed to the shape or form assumed by their fellows of the opposite side. These changes of form are natural and are normal, they bear a definite relationship to one another. These can be expected to accompany, to form part of, every movement of the trunk, according to physiological laws. If these movements are in the nature of side-bending or rotation of the trunk we may expect that the trunk will assume a position of physiological curvature. Each and every part of the trunk will carry out a physiologically prescribed part; these, together, will form a definite physiological picture, known as *physiological scoliosis.* This complex picture known as physiological scoliosis follows, indeed, forms part of a normal function. In it there is no permanent change. From it there is a return to the normal or to a physiological scoliosis of a reverse or opposite character. It pictures a condition which is seen in the thorax of each and every one of us scores of times every day. Physiological scoliosis in the less noticeable forms is a position of rest which is seen in those who suffer from physical exhaustion and in those whose muscles have lost their normal tone.

Pathological Scoliosis.—If we examine bony skeleton of one who has suffered from pathological scoliosis we find that in it is pictured a condition which is the counterpart of physiological scoliosis. It differs from it, however, in the fact that pathological scoliosis is the greater, physiological scoliosis is the less. Pathological scoliosis is an exaggeration of physiological scoliosis. From physiological scoliosis there is a return to the normal or to a physiological scoliosis of a reverse character, whereas in pathological scoliosis there is no re-

turn to the normal. In pathological scoliosis there are changes, whereas in physiological scoliosis there are no changes in the architecture of the bone.

Etiology.—No one factor is responsible for scoliosis. Sir Arthur Keith, in his delightful book, entitled "The Menders of the Maimed," states that every one has agreed that the scoliotic posture is primarily assumed to rest the muscles which balance the vertebrae upon each other and maintain the spine in the erect position. He says; "When the proper spinal muscles begin to yield from exhaustion the vertebrae swing around until they are held up by ligaments which bind their transverse processes to the necks of the ribs. The ribs would, if they could, swing around with the vertebrae, but they are held by the powerful abdominal and intercostal muscles. In reality the spinal muscles abandon their static function to the powerful muscles which act on the lateral and ventral parts of the ribs, thus, the vertebrae, instead of being balanced on each other, come to be braced, whenever the erect position is assumed, against the dorsal ends of the ribs, which soon begin to yield and become deformed in the manner with which every one is familiar".

Yet it is a well-known fact that many cases of pathological scoliosis do not originate from the exhaustion of spinal muscles. Adams has pointed out that deformed vertebrae causing an unstable base to the spinal column may be the primary cause of scoliosis. English writers have insisted that congenital deformities of the vertebrae, also, may be the primary cause of scoliosis. Further it is agreed that the weakening of the spinal muscles or stays which support the vertebral column or mast may be the primary source of a scoliosis which is most difficult tc deal with.

Prognosis.—The prognosis of pathological scoliosis depends on two factors. First, the etiology, and, second, the degree of change which characterizes the bony framework of the trunk. Let us consider the latter. Experience has proved that we cannot alter the *architecture* of bones which are organically changed, of vertebrae which are wedge-shaped and of ribs which have lost their resiliency.

For some years Doctor H. B. Cushing and the medical staff of the Children's Memorial Hospital in Montreal, have insisted that few cases of extreme scoliosis attain to old age. Many die from circulatory disturbances due to obstruction caused by thoracic deformities. Dr. F. G. Finley, of McGill University has, within the past year, published evidence which tends to confirm this statement.

Treatment.—Our ability to relieve pathological scoliosis will depend on our ability to reverse the deformity, to so change the contour of the thorax and the trunk, both as a whole and in its parts, that it will be as far removed from pathological scoliosis as possible. This is the key to treatment. This is our hope of relief. Unless we use this key we cannot expect to see the delectable land of normality. This is the principle which has been so often forgotten in the past.

In the treatment of scoliosis due to muscular weakness every individual must be made to develop the weak muscles which should furnish the staying power of the vertebral column, to stretch the soft parts which are contracted, to remodel bones which are capable of being remodelled.

Sir Arthur Keith says that, "The true agents of redemption are the muscles of the short levers of the vertebrae—the erector spinae and its derivatives which act on the spinous and transverse processes." But to strengthen these the exercises chosen must be based on physiological principles which are calculated to produce a physiological scoliosis of the reverse order to the pathological scoliosis already existing, namely, the production of a scoliosis with convexity to the right where a scoliosis with convexity to the left already exists or *vice versa*. The forces exerted must be calculated not only to act on the thorax but to control the lumbar vertebrae. Every patient suffering from scoliosis should be treated as an individual, a separate study, and for each patient suffering from this condition definite exercises must be prescribed and carried out in order that in none will opposing forces be called into action to defeat the very ends desired. For the majority of cases this is all that is expedient, necessary or justifiable.

Theory and experiment have alike proved the importance of increasing the capacity of the thorax and remodelling the architecture of the skeletal walls in cases of scoliosis so that the thoracic organs may be in the best possible position to function. This can be done by the placing of each component part of the thorax in a form or a position in every way opposed to that of deformity; that is, in a position of physiological scoliosis of the opposite character to the pathological scoliosis already existing.

No matter how we treat scoliosis, no matter

what method we employ to treat lateral curvature, the fundamental principle to be carried out during treatment must be the reversal of the deformity—the placing of the thorax in a position as far removed from that of the deformity as possible. We should do this not only because the further the distance from deformity the nearer the normal becomes the patient, but because pathological scoliosis is not only a distressing deformity but the position of pathological scoliosis is one in which the thoracic organs are placed at great disadvantage and their function is materially interfered with.

Treatment must aim at the prevention of irremedial bony changes, because no effective form of treatment has been found for bones whose external architecture has been altered by organic change. Be the treatment carried out early or late it must aim at placing the thorax, and the trunk generally, in a position as far removed as possible from that of the deformity. In a number of patients suffering from scoliosis, pressure applied according to physiological rules may benefit, if the strictest attention is paid to the mechanics of the spine and thorax and to the function of its component parts.

It is open to question whether much of the pressure which has been exerted in the past for the sake of straightening spinal curvatures has not been applied on the lateral surface of the rib wall of the convex side of the spine. This pressure, as one can see, will tend to do two things and both of these to the detriment of the patient, it will tend to increase the flattening of the already flattened and deformed rib wall, and it will tend to further rotate the bodies of the vertebrae into a position of greater deformity.

In certain cases pressure may be applied by means of plaster jackets, but, in many, it is, perhaps, wiser to employ a brace calculated to hold the thorax in a position of correction. It seems essential that this brace should be easily removable so that the patient may depend, to a greater extent, on treatment by exercises which will develop the muscles attached not only to the ribs, but to the vertebrae themselves.

As Sir Arthur Keith says, "the part played by the ribs in checking the rotation of the vertebrae and the lateral curvature of the spine has not been sufficiently emphasized." We may add that neither has it been sufficiently emphasized that the part played by the ribs when pressure has been applied on them in order to relieve the spinal curve, may be to the disadvantage of the patient; and, conversely, it is important to remember that those ribs which may be the cause of the deformities of the spine can be used as levers for the correction of the deformities. The power which it is possible to exert on these ribs is that of the great muscles which maintain the erect position of the spinal column. The ribs are long and powerful levers, particularly from the fifth to the tenth inclusive, and the great muscular sheets attached to their lateral and ventral aspects can act at an enormous advantage compared to the muscles acting on the short transverse and spinous processes.

In conclusion we may state that in our opinion in all cases of scoliosis, be they mild, or be they severe, treatment must be based on the necessity of maintaining the thoracic walls in a position as near as possible to the normal in order that there may be no interference with the function of the vital organs.

We do this by exercises, posture and pressure, all calculated to bring about the maximum of relief by the minimum of sacrifice. We endeavour to maintain our position of correction. If we fail, we then consider the advisability of operative procedures. Although these have been already fully described it may be wise to mention that the result aimed at is the securing of stability of the vertebral column by ankylosing adjacent vertebrae. This may be done by the producing of new bone on the posterior surfaces of the laminae, transverse and spinous processes. This operation has been performed in a series of patients with gratifying results,—the patient's general condition having been markedly improved. In each case an increase in the patient's height was obtained and the patient's morale decidedly benefitted.[1]

REFERENCE

(1) *Journal of Bone and Joint Surgery*, July, 1922

"If the modern surgeon is vexed to hear that surgery is, as Galen declared, but a method of treatment, he is vexed by a truth which in the best interests of our profession he ought to welcome.—*Allbutt Historical Relation of Medicine and Surgery.*

"That man who observes and thinks for himself is wise, but he who sits long with the observations and the thoughts of others, scorning not the opinions of the obscure, yet observes and thinks none the less for himself, is the teacher of the ages."—*Aristotle.*

CONGENITAL SYPHILIS*

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THE difficulties encountered in the detection and treatment of congenital syphilis are recognized alike by the general practitioner, paediatrist and genito-urinary specialist. Cases are being frequently overlooked as a result of the paucity of symptoms presented. In those cases which are recognized, proper treatment not uncommonly is neglected, because of a wide spread belief that the results of such treatment are unsatisfactory. The following contribution, which is an analysis of three years' work in a clinic for luetic children is offered in the hope that it may clear up a few points in the diagnosis of the condition and also tend to modify the prevailing pessimistic outlook regarding the prognosis.

Since July, 1919, 186 cases of hereditary syphilis have been under observation in either the wards or Out Patient Department of the Hospital for Sick Children. Some of those admitted to the wards were subsequently treated and observed in the Out-Patient Department, but a great many were lost sight of, returning after discharge to the care of their own physician. A few facts of interest may be obtained by an analysis of the total number of cases, but the most important information, such as the results of treatment, has been gleaned by a study of ninety-nine cases which were observed for a period of more than four months. To this number has been added one from private practise in order to facilitate the recording of percentage results.

Symptomatology.—The age at which these patients first reported for treatment and the symptoms presented at that time are of considerable interest from the point of view of prognosis. Of the 100 cases, sixty-four, or nearly two-thirds were over five years of age; thirteen were between one and five years and twenty-two were under one year. Thus it will be seen that the great majority of cases do not come under medical supervision until the tertiary stage is reached. Of the sixty-four cases over five years of age, thirty-one or nearly one-half reported because of an interstitial keratitis; thirteen, or twenty per cent. were referred for examination because one or both parents had been proven to be infected. Periostitis was the condition for which four cases sought relief and cerebro-spinal manifestations accounted for six. Of the thirteen cases whose ages varied from one to five years, which is usually considered the symptomless or latent stage of hereditary lues only three reported because of some condition associated with a syphilitic infection, *viz.*, two with condylomata and one with mental deficiency due to cerebro-spinal lues. Of the twenty-three cases under one year—the so-called early stage—nineteen were suffering, when first seen, from secondary manifestations such as snuffles or eruption. Six of the nineteen cases or nearly thirty-three per cent. had a pseudo-paralysis due to epiphysitis.

Considerable discussion has taken place recently, regarding the frequency of cerebro-spinal involvement in the early stage of congenital syphilis. With this in mind we have examined the spinal fluid in the last fourteen cases and in four of them have found pathological changes which were pathognomonic of cerebro-spinal involvement.

An analysis of the figures just quoted clearly shows why the treatment of congenital syphilis has not produced more encouraging results. Only one-fifth of the 100 cases had early manifestations severe enough to compel the parents to seek medical advice. As will be shown later it is these early cases which are so readily cured. It is possible that some of the older children did have suggestive symptoms in infancy but these must have been very mild as it was seldom that a history of such symptoms could be obtained from the parent.

It is our belief that the diagnosis of congenital syphilis has been rendered difficult in the past because too much stress has been laid on unim-

*Read before the Ontario Medical Association, May 1922.

Note:—The material for this paper was obtained from the Wards and Out-patient Department, Sick Children's Hospital, Toronto.

portant and rare manifestations For example, changes in the skull bones such as bossing and cranio-tabes which have been described by English writers as syphilitic in origin are almost never encountered. Congenital anomalies, mongolian idiocy, and alopecia are seldom if ever the result of a syphilitic infection. One should, however, be suspicious of every snuffling infant during the early months of life. This sign is one of the first to appear and is by far the most frequent early manifestation. If, in addition an enlarged spleen is found on examination, a tentative diagnosis of syphilis is justifiable. The time of appearance of the eruption varies. When it does appear it is almost always of the well-known maculo-papular variety. Pemphigoid and pustular syphilides are almost never seen. There were none in this series of 186 cases. Epiphysitis, manifesting itself during the first four months of life as pseudo-paralysis of one or both upper extremities without local signs of inflammation in the joint and without elevation of temperature occurs in twenty-five per cent. to thirty per cent. of the cases. There is no other condition which simulates syphilitic epiphysitis so closely as to render the diagnosis uncertain.

There is one other sign which occurs so uniformly in the early stage that it is of considerable value in diagnosis. It has been observed by one of us for some years past but has never been described in any text-book or writing on the subject. The sign referred to is a "froggy" or "fishy" appearance of the eyes simulating at times a mild exophthalmous. This "frog-eye" or "pop-eye" appearance is also to be seen in some premature infants but not with the same regularity that it is in those suffering from lues.

There is, as a rule, little difficulty in recognizing the tertiary or late manifestations of the disease. Interstitial keratitis, Hutchinson's teeth and periostitis are the most common and the first two at any rate can hardly be confounded with any other condition. Our experience has been that deformities of the teeth are diagnostic of syphilis only when involving the upper central incisors.

Diagnosis.—The reliability of the Wassermann reaction has always been a bone of contention between the clinician and the pathologist, and the controversy is not by any means settled at the present time. It is generally agreed that positive reactions may be obtained in cases who are definitely non-syphilitic; the difference of opinion exists, however, regarding the possibility of a negative reaction in untreated, clinically syphilitic patients over three months of age. Under this age it is conceded that a negative reaction may exist even though the child is infected and we have had several examples of this in the last three years. Our experience has been that two successive negative Wassermann reactions obtained on blood which has been collected with reasonable precautions as to technique is positive evidence that the patient is not suffering from congenital syphilis, provided the patient is more than three months of age and has not previously received specific treatment. All Wassermann tests from the Hospital for Sick Children have been performed by the pathological department of the Toronto General Hospital under the direction of Dr. Detweiler. Great credit is due to this laboratory for the fact that in three years we have had no reason to change our conviction as cited above. A short resumé of two cases during the past year serves to demonstrate the reliability of the test. A girl of about ten years of age presented tumefactions over the cranial bones which closely simulated subperiosteal gummatous deposits. After repeated negative blood-Wassermann reactions operation was advised and the condition found to be sarcomatous. Another case was that of a twelve year old girl presenting a periostitis of the lower end of the femur. Clinically the case was one of syphilitic periostitis and the x-ray findings also were characteristic of this disease. After repeated negative Wassermann reactions an operation was performed and the lesion discovered to be a subacute osteomyelitis due to some low-grade pyogenic infection.

Treatment.—It is not an easy matter to tabulate a series of cases such as this and record results of treatment which will be at the same time comprehensive and accurate. There are many factors which render accuracy difficult of achievement. The length of time the patient is under treatment, the stage of the disease present when treatment is commenced and the regularity of such treatment must all be considered. Also one must decide whether the standard of improvement is to be serological or clinical. The scheme which we have decided upon as providing the most useful information is as follows: Only those cases which have been under observation for a period of four months or more were selected for analysis and these cases were grouped according to the stage of the disease presented when treatment was commenced. By this means the most important factor influencing the chance for

complete cure is more clearly shown. It must be understood that by selecting only those cases under treatment for more than four months no information is given as to the actual mortality since the fatal cases as a rule die shortly after coming under observation. The figures for this can be compiled however from the total number of cases seen in the last three years. Of 186 cases, thirty-five or nineteen per cent. died. This death rate is a little lower than that given by other writers. The Wassermann reaction has been used as the standard for determining the results of treatment, since it is a well recognized fact that clinical manifestations with one or two exceptions, disappear rapidly after the administration of arsenic, and for this reason a clinical standard provides a very unreliable basis for the recording of progress toward permanent cure.

The routine of treatment adopted is as follows: The intravenous injection of one of the arsenical compounds once a week for six weeks followed by a course of mercury for six weeks. Blood for a Wassermann test is then taken and if still positive the courses are again repeated. This routine is continued until a negative test is obtained or the hope of securing a negative test is regarded as small. The arsenical compound recommended is either sodium diarsenol or phenarsenamine. All injections are intravenous. The veins used being those of the scalp, the antecubital space, or the external jugular. The longitudinal sinus is never used since such a procedure is not unattended with danger. Mercury is given by inunction to the infants, and by inunction and by mouth to the older children. Intramuscular injections are employed in those cases where there is a well founded suspicion that the home treatment by inunction is being neglected by the parents. In a few instances arsenic and mercury have been administered at the same time. The cases of neuro-syphilis were treated in the manner suggested by Swift and Ellis; this is an intravenous injection of an arsenical compound followed by drainage of the cerebro-spinal tract and injection intrathecally of salvarsanized serum from the patient.

The first group for consideration comprised those cases first seen when under one year of age, or during the early stage of congenital syphilis. There were twenty-two cases in this group, of which two died with broncho-pneumonia; nineteen of the remaining twenty are, at present, Wassermann negative; three have had only one negative test; six have had two successive tests; and ten have had from three to eight successive negative tests. The first negative Wassermann was obtained on an average of six months after the commencement of treatment, the shortest period required being four months and the longest eleven months. To obtain this result it was usually necessary to administer two courses of arsenical treatment and two courses of mercurial inunctions, though in seven cases one course of each was sufficient. The twentieth case was one of hydrocephalus due to cerebrospinal syphilis which received intravenous and intraspinal treatments for a period of ten months at the end of which period the blood Wassermann was negative and the cerebrospinal fluid was normal. This patient left the city and disappeared for nine months and only recently returned. The blood Wassermann is again very strongly positive but a permanent cure would undoubtedly have been effected had proper treatment been continued. This was the only instance in the group where the Wassermann reaction has returned to positive after having once become negative so that we feel justified in assuming that the more recent cases with only one negative Wassermann will prove to be permanently cured.

The second group comprises those cases first seen between the ages of one and five which period corresponds to the latent stage; of these none died; six are at present and have been for a period of from two to fourteen months, Wassermann negative. In five the test has been reduced from a very strongly positive to a positive or a weakly positive reaction, and two are unimproved. The first negative reaction was obtained on an average of eleven months after treatment was commenced, the shortest period required being four months and the longest nineteen months. Two cases in this group became Wassermann positive after having been negative.

The third group of sixty-five cases consists of those children first seen when over five years of age—the so-called late or tertiary stage. One of these children, a mental defective with cerebrospinal syphilis, died suddenly in convulsions. Twenty-four are at present Wassermann negative; twenty-two have been improved and sixteen unimproved. The first negative Wassermann was obtained on an average of sixteen and one-half months after treatment was commenced, the shortest period required being six months and the longest twenty-seven months. There were twenty instances in this group of the return of

the Wassermann reaction to positive after having once been negative. It is evident that, in treating these patients over a long period of time, one is courting danger in the form of chronic arsenical poisoning. Twenty-two of the sixty-five late cases received more than forty injections of salvarsan, one receiving sixty-eight treatments. There have been four instances of the above mentioned complication in the last three years. One occurred after only four treatments, one after sixteen and one after twenty-five and one after forty-four. In all cases there was severe vomiting, jaundice, anorexia and loss of weight. Recovery occurred in every instance. In two of these cases the urine examined during the attack showed no albumen and no casts. At present we have no suggestions to offer which would assist one in anticipating the onset of chronic arsenical poisoning.

Perhaps the greatest problem to be disposed of is that relating to the older cases who have been under treatment for two years or more without any improvement in the intensity of the Wassermann reaction. Although these cases are symptom-free and apparently healthy it is possible that after cessation of treatment the disease may light up again. On the other hand continuation of treatment may imperil the patient's life by occasioning the serious complication of arsenical poisoning. We have no solution to offer for the problem. It is possible that the careful observation of such cases over a number of years may show that the dangers of relapse have been magnified.

In conclusion we wish to record certain convictions which we have gained as the result of three from serious complications such as broncho-pneumonia can be permanently cured by the regular administration of salvarsan and mercury. The first negative Wassermann may be expected on an average of six months after the commencement of treatment. (2) Interstitial keratitis appears to be little, if at all, improved by specific therapy. In fact the onset and course of this manifestation of hereditary lues seems to be entirely independent of treatment. (3) Cerebro-spinal lues if detected early can be greatly improved and sometimes completely cured by intravenous and intraspinal treatments. If detected later the process may be arrested but the damage already done is irremediable and manifests itself in mental deficiency, paralysis and deformities. (4) The two most important factors in successful treatment years' work: (1) Every case of congenital syphilis in the early stage, which can be protected are,—(*a*) the persistency and regularity of treatments and (*b*) the careful supervision of the child's dietary and routine of life with a view to maintaining general health and nutrition. (5) The average length of time required to obtain a persistently negative Wassermann in the latent cases and in the tertiary cases is eleven months and sixteen and a half months respectively. Thus an accurate statement as to the extent of one's ability to cure the disease in these stages can be made only after an analysis of a number of cases which have been under treatment for periods of nineteen months for the latent stage and twenty-seven months for the tertiary stage

	Early Stage		*Latent Stage*		*Late Stage*	
	No.	Percentage	No.	Percentage	No.	Percentage
No. of Cases	22		13		65	
Wass. Negative	19	86.4	6	46	24	37
Much Improved	—	—	2	15.4	13	20
Improved	—	—	3	23	9	13.8
Unimproved	1	4.5	2	15.4	18	27.7
Died	2	9	—	—	1	1.5
No. relapsing from Negative to Positive	1	4.5	2	15.4	20	31
Probably Cured	19	86.4	5	40	20	31
1st Neg. Wass. Aver. Time	6 mos.		11 mos.		16.5 mos.	
1st Neg. Wass. Earliest	4 "		9 "		6 "	
1st Neg. Wass. Latest	11 "		19 "		27 "	

Total Results 100 Cases

Probably Cured	44%
Much Improved	20%
Improved	12%
Unimproved	21%
Died	3%

THE MANAGEMENT OF DISCHARGING EARS IN CHILDREN

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THE reason for this communication lies in the fact, that the subject of discharging ears in children has not received the attention which its importance warrants. The experience of the clinics emphasizes the need for some statement, based upon extensive observation, that may be used not only as clinical information, but as a guide in the direction and care of such cases.

The danger of cranial complications in chronic ear disease of adults, has been repeatedly pointed out, and although these same complications exist in children, it is from the standpoint of the child's hearing that this subject is of such great importance. Chronic discharge means more or less permanent deafness, and a deaf child is unable to obtain a proper education. He becomes handicapped from the very start, and suffers throughout life from inability to compete with those of sound hearing. It is hoped that the following remarks, though of necessity general in nature, may help in establishing a more logical attitude towards this important subject.

It may be necessary at the outset to alter one's conception of the pathology, for many fanciful ideas are in existence. An uncomplicated acute suppurative otitis media, in which adequate drainage has been effected, either by nature, or by incision, is an inflammatory process which can well attend to itself. It resolves after a time varying from a few days, to two or three weeks, occasionally longer, depending mainly upon the general condition of the patient.

If an acute case does not recover within this variable time limit, then one may take the point of view that there is some condition, other than in the middle ear(though this is not always the case) which is responsible. It then becomes necessary to find out what this condition is and, by correcting it, ensure healing of the ear before any damage to health, or hearing, has taken place. By adopting such an attitude, discharging ears will not be allowed to become chronic and the subsequent dangers and disabilities will be eliminated. All of these can be prevented if patients, or the guardians of patients, are properly advised at the proper time. It does not seem to be realized, that ears allowed to continue discharging are progressively losing their function, and that further serious trouble may be progressing inside, irrespective of external appearances. The important factor in the care of an acute case is not in local treatment, but in general medical attention and observation.

There is a wide-spread feeling that the popular treatment of syringing out the meatus with boracic solution is the best and only thing to do. So far as can be made out, assiduous measures so directed, have no favourable effect; nor would one expect them to have. It is far safer to do less and watch more. As the infection comes from the post-nasal space, measures directed towards making that more healthy are more logical. The harm from the use of boracic, arises not from any property of itself, but in the unbounded, and unwarranted faith in its efficacy, and the continuance of its use long after other measures should have been adopted.

Descriptions of local appearances, and of the various types of discharge which one finds, are beyond the range of this paper; they vary with the virulence of the causative organism and the stage of the inflammation. It should be noticed, however, that it is mucous membrane which is mainly involved, and the manifestations will be similar to those of any inflamed mucous membrane. The temporary deafness gradually disappears with resolution. One would not expect immediate restoration of hearing, with the cessation of discharge.

The common conditions responsible for the continuance of the discharge after the acute stage are not many, and they may act alone, or in combination with each other. They are:—

(1) A devitalized condition of the patient, from any cause. (2) An inflammation in the naso-pharynx, associated with the presence of adenoids, chronic rhinitis with hypertrophy, or diseased tonsils. (3) Concomitant inflammation of the mastoid antrum and cells.

Mastoiditis may occur at any age, for the an-

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trum is present at birth. Clinically, this involvement may be of two types, one in which erosion of the superficial bone takes place, giving rise to a periostitis, with or without a subperiosteal abscess. The signs of this type are almost impossible to miss on examination. The other type is that in which there are no external signs. In this there may be nothing external to suggest mastoiditis, for the drainage is so free from the antrum into the middle ear, and thence to the outside, that there is not the tendency to spread outwards as in the former. The diagnosis often is difficult and that is why it is so frequently overlooked. If the discharge continues it is wrongly called a chronic otitis media, when it is, in reality, a chronic concealed mastoiditis draining through the middle ear to the outside.

When there is involvement of the mastoid, it probably takes place at the same time the middle ear is infected. If it is going to show itself externally, sufficient time must elapse for the infection to reach the periosteum. This time will be less in infants, as the autrum in them is very close to the surface; as growth proceeds, more and more bone is deposited on the outer side of the antrum, so that it comes to lie farther and farther from the surface. In older children it is rare to have external signs before twelve or fourteen days have elapsed.

One cannot judge from the surface what is going on underneath. Often the cases looking the worst outside, are the safest inside, and *vice versa*. In a type marked by the formation of cholesteatoma, progressive erosion of the bone may take place in any direction. Eventually, secondary infection takes place with serious consequences.

The suggestions I am about to offer in the care of these cases, are based upon the routine procedure established in the ear clinic at the Hospital for Sick Children. Here the attempt is made to control all acute cases, in such a way, that none will be allowed to progress to chronic conditions.

In cases seen at the onset of an acute attack, in which the drum membrane has commenced to bulge in the upper, posterior part, an incision is recommended, made preferably under ethyl chloride general anaesthesia. This incision must be adequate and if the mucous membrane in the region of the aditus be much swollen, it should be incised as well. A mere stab of the drum is not sufficient, it may only give temporary relief and in closing permit a recurrence of the symptoms. If an adequate incision be made, there is no call for any repetition. If symptoms should arise suggesting inadequate drainage, the cause lies deeper, and will not be improved by re-incision. This statement needs emphasizing, for much permanent damage to ear-drums has been done by unnecessary repeated incisions. After adequate incision, general medical attention is the main need, in which a careful watch is kept of the course of the inflammation. A simple and safe way of cleansing the ear is to wipe out the meatus occasionally with pledgets of dry cotton, leaving a loose piece over the opening, to be changed when soiled. For the post nasal space, a few drops of liquid paraffin alone or combined may be dropped into each nostril, (the patient lying on his back) and allowed to run backwards. This acts mechanically in helping to clear away the accumulated secretion. In cases already discharging when seen, for future reference a note of the date of onset is important. Usually the drainage made by nature is sufficient, but the question of incision must be decided by the individual factors in the case.

Should the case not recover in a reasonable time, a careful examination should be made for the presence of any complication or impairment of general health which may be preventing the healing; this detailed examination will usually reveal the cause, and this cause should be attended to in the most efficient way. Superficial tenderness over the front part of the tip of the mastoid is very common in the first few days, and signifies little; deep tenderness over the antrum in the second or third week is most significant of trouble inside.

If there are no external signs of complication, active inflammation in the ear in the third week, as shown by pulsation of the discharge (transmitted from the dilated vessels) or a profuse discharge out of all proportion to the capacity of the middle ear usually means concealed mastoiditis. Sagging of the posterior superior wall of the meatus, an evidence of inflammation of the bone adjacent, is not always present in mastoiditis. The persistence of fever may be valuable evidence, though if drainage be free, there may be extensive involvement with little change in temperature.

It is impossible to give general directions to fit every case. Each must be studied independently, from the fullest local and general information obtainable. In many cases the diagnosis must rest upon fine points, which perhaps would be unnoticed, except by one with extensive experience in this work. In cases which have un-

fortunately become chronic, there is only one course to take—to place them under observation until a detailed diagnosis has been made, and then attempt to correct the condition.

It has been pointed out that most of these cases are not chronic otitis media, but chronic concealed mastoiditis, and operation seems to be the only satisfactory way of dealing with them. There is no one set type of operation that will do for all cases. Each must be studied individually, and the nature of the operation performed will depend upon the necessities of the case. It seems, however, a great pity that so much of this trouble should exist, and so much time should be taken in repairing what need not have taken place. Prevention can be ensured by controlling all acute cases, and the carrying out of this control will demand much patient work for a number of years.

In this effort it is essential to have the understanding and the help of the profession, who, it is hoped will be in a position to give sound advice, and it is also essential that the laity be provided with sufficient information of the nature of the trouble, to lead them to seek that advice early.

I close this paper by adding a copy of the information given to the parents or guardian of every ear case coming to the clinic.

A discharge from the ear is the result of an abscess. In most cases this abscess is located in the middle part of the ear internal to the ear drum, and is caused by germs which make their way through a small passage from the space behind the nose. There is usually a great deal of pain, until it is relieved by a discharge making its way through the ear drum, and appearing at the opening of the ear. This abscess is located in that part of the ear which carries the sound, and always causes temporary deafness. If the discharge is allowed to last more than a few weeks, this deafness will become permanent, and a slow destruction of the ear will set in, possibly leading to very serious complications. The longer the discharge is allowed to go on, the greater the destruction, the greater the degree of deafness, and the more difficult it becomes to right the condition. Deafness prevents a child from being properly educated, and so prevents him when he grows up from being able to earn a proper living, and taking his proper place in the community. Do not neglect your child, thinking he will grow out of this. You are allowing the ear to become damaged beyond repair. Report it at once, as soon as you know of an earache or discharge. If attended to early and properly, this trouble can be cured before any damage is done. You cannot afford to let your child become deaf, or to have diseased ears.

A NOTE ON THE PHOSPHATE CONTENT OF THE SERUM OF CASES OF BONE TUBERCULOSIS TREATED BY HELIOTHERAPY*

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THIS note is published to report the result of an investigation of the mechanism of the curative action of sunshine in cases of bone tuberculosis. While the results of the research have been negative, it is felt that they should, nevertheless, be recorded.

It has been demonstrated with reasonable certainty that heliotherapy is of greater value in the treatment of tuberculosis affecting bones than it is in the treatment of tuberculosis affecting soft tissues. Influenced by the recent work on the problem of rickets, Harris[1] advanced the suggestion that the superior efficiency of sunshine in cases of bone tuberculosis might be due to an action upon the phosphate metabolism similar to that occurring in rickets, which favoured the deposition of new bone in the focus of disease, and thus produced a cure. It will be recalled that infants suffering from rickets display as one of the most striking symptoms, evidences of marked impairment of the power to form bone. The epiphyseal lines show a characteristic disturbance and radiographs or microscopic sections of such diseased epiphyses show that the pathological condition is due to a marked deficiency or absence of bone salts. At this stage of the disease, the blood, as has been demonstrated by Howland and Kramer[2], Hess and Gutman[3], Tisdall[4] and others, is poor in one of the elements which was necessary for the formation of bone, *viz.*, phosphorus. When these patients are exposed to sunshine, the impaired osteogenetic power of the individual is restored. This is evidenced by the deposition of bone salts in the epiphyseal lines. At this stage the phosphate content of the serum is found to be markedly increased.

The cure of foci of tuberculosis in bones is effected or at least accompanied by the deposition of new bone in the diseased area. It is

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customary to judge the progress of such cases by examining the evidence of radiograms in an effort to determine the amount of new bone laid down. In view of the osteogenetic action of sunshine in rickets, it was not unreasonable to assume that the mechanism of the curative action of the sun's rays in bone tuberculosis might be of a similar nature and that the concentration of the inorganic phosphorus in the blood serum during the curative stage might be found to be increased.

The phosphate content of the serum of a series of patients suffering from tuberculosis was examined before and after varying periods of heliotherapy. Three patients with bone tuberculosis (one Pott's disease, one sacro iliac disease and one tuberculous hip) and three cases with soft tissue tuberculosis (two tuberculous peritonitis and one tuberculosis of thigh) constituted the first series.

TABLE I

Concentration of the Inorganic Phosphorus in the Serum of Patients suffering from Bone and Soft Tissue Tuberculosis, undergoing Heliotherapy.

Case No.	*Age Years*	*Before Treatment, May 26*	*After 150 hrs. exposure to sunlight, July 17*	*After 295 hrs. exposure to sunlight, Sept. 6*	*Present clinical condition*
		mgms P. per 100 cc. of serum	mgms P. per 100 cc. of serum	mgms P. per 100 cc. of serum	
1	38	4.0	4.1	3.0	convalescent
2	27	4.1	4.1	3.0	cured
3	29	3.8	4.1	—	unchanged
4	30	4.1	4.7	4.1	very much improved
5	33	4.3	4.0	3.5	convalescent
6	29	4.7	—	3.9	very much improved

Cases 1-3 are cases of soft tissue tuberculosis

Using the method described by Tisdall[5] the phosphate content of their serum was determined, (a) before instituting treatment, (b) after 150 hours' exposure to sunlight administered over fifty-two days and (c) after the further administration of 145 hours of sunlight in a second period of fifty-one days. The results are recorded in Table I. All these patients made definite clinical improvement except Case 3, and in addition x-rays of the bone cases showed evidences of new bone formation.

A second series of determinations were made on patients all of whom were suffering from bone tuberculosis. The patients had been exposed to sunshine during a whole summer (350 hours). These results are recorded in Table II. During the period covered by these observations all the patients made definite clinical improvement. In addition radiograms showed signs of local healing as indicated by the deposition of new bone.

TABLE II

Concentration of the Inorganic Phosphorus in the Serum of Patients suffering from Bone and Soft Tissue Tuberculosis after 350 hours' exposure to sunlight.

Case No.	*Age Years*	*Mgms. per 100 cc.*	*Present clinical condition*
7	23	3.4	cured
8	31	3.2	very much improved
9	27	2.5	very much improved
10	33	2.6	convalescent
11	29	2.8	convalescent
12	27	3.4	very much improved
13	23	3.9	very much improved
14	25	2.8	very much improved
15	27	3.6	convalescent
16	28	3.9	convalescent
17	25	3.4	convalescent
18	26	3.2	very much improved

The inorganic phosphorus content of the serum of normal adults varies from 3.5 to 4.0 mg. per 100 cc.

From the results recorded in Tables I and II, it is apparent that the deposition of new bone which occurs during the cure of bone tuberculosis is not accompanied by an increase in the inorganic phosphate content of the blood serum such as occurs during the cure of rickets. In many cases the concentration of phosphorus was found to be actually below that present in normal serum. No increase was found to occur in the inorganic phosphate content of the serum in three cases of soft tissue tuberculosis, two of whom were improved by treatment.

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SUPPLEMENTAL FEEDING IN GASTRO-INTESTINAL DISTURBANCES OF THE BREAST FED INFANT*

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WE are all agreed that, in the feeding of infants, breast nursing is paramount. It is only when this fails in its perfect functioning that other means are necessary to maintain the comfort and general well-being of the infant. Many infants, when gastro-intestinal disturbances arise, are taken from the breast and fed artificially. Many of these may be kept at the breast and their comfort and health improved by judiciously supplementing the breast feeding.

For the sake of discussion, permit me to offer a simple classification of these disturbances: (1) Dyspepsia; (2) Constipation; (3) Vomiting; (4) Diarrhoea.

We are all acquainted with the dyspeptic breast fed infant and the frantic desire of the members of the household to have something done to relieve its distress. Some of these cases respond to the simple procedure of lengthening the period between nursings and cutting down the time at the breast. In others, the child is little, if any, improved, and the loss of function of the breast may be threatened, or a child crying from hunger may confuse the result. These children are usually vigourous, greedy babies. Numerous green stools with mucous and fat curds showing, are passed. In this type of case supplementing part of each nursing will give good results in the majority of cases when weaning from the breast would seem almost a necessity to bring about this result. It is obvious that the bottle feeding must be given before each nursing, must not excite further any of the symptoms present, must tend to offset the fermentation in the intestine, and take the nip off the greedy baby's appetite. Protein milk of Finklestein and Meyer, the formula used in most children's hospitals, fat 1.5; sugar, 1.5; protein, 3.3, is the feeding of choice. Full strength may be used except in very young infants, where it may be necessary to use two-third's strength. The amount given before each nursing is, one-quarter to one-third the estimated amount of food the child takes at a feeding. Protein Milk Powder, as prepared by the Canadian Milk Products Co., has been used with encouraging results in cases that live outside the city, although its higher sugar and fat content renders it less efficacious than the former. Its use may be recommended to physicians in rural districts and small towns who are not in touch with a feeding laboratory.

One finds that, in the majority of cases, as the infant grows older, and the mother's health is improved by full simple diet, plenty of exercise and unbroken sleep, the protein milk feedings may be gradually discontinued and uneventful breast feeding carried on until weaning time.

Three forms of constipation are worthy of discussion under this heading:

(1) Constipation due to high fat content of the food.

(2) Breast milk scanty or low in solids with little residue.

(3) Obstinate constipation in both mother and babe.

The first form, rarely seen in the breast fed infant, corresponds somewhat to what we know as weight disturbance in bottle fed infants. The stools when passed are hard, grey and crumbly, the so-called soap stool. The infant is usually cross and irritable and may show signs of exudative diathesis. Supplementing part of each breast feeding with a low fat cow's milk formula with malt sugar added has been found useful in combating this condition. In constipation due to breast milk low in solids, either supplemental or complemental feeding obviously will bring about an improvement and may be recommended without criticism.

Some observers are of the opinion that obstinate constipation in both mother and babe is coincident and bears no relationship to one another. It is very difficult to believe this, when the conditions are so frequently seen together, and no other cause can be found to account for the trouble in the infant. Several cases of this

*Read at the Ontario Medical Association, Toronto, May 1922.

type have come under our observation recently. Improvement in all was brought about by feeding a cow's milk mixture with malt sugar added, before each nursing. The quantity being about one-third of the estimated amount taken by the infant at a feeding, *i.e.*, infant five and one-half months old, weight, fourteen lbs., estimated quantity taken at nursing, seven ounces. Feed baby two and one-half ounces cow's milk formula before each nursing.

Physicians for some time have endeavoured to connect two types of vomiting in breast fed infants by supplementing part of each breast feeding with thick cereal mixtures. The two types are known as habitual vomiting and rumination. Some cases of the former type may be improved by this method, provided the infant is past the age where starch in large quantities would be poorly handled by the gastro-intestinal tract. The latter condition is not a common one in breast fed infants. Whenever it does occur, if we wish to keep the child at the breast, in supplementing part of each breast feeding with thick cereal mixtures lies our only hope of improving a habit that may have very serious consequences on the nutrition of the infant.

A type of diarrhoea with a passage of eight or ten green frothy stools daily is seen sometimes in breast fed infants with neurotic mothers. This is believed to be due to some temporary change in the breast milk and is not an uncommon thing in this high tensioned age. It may occur during the period of menstruation or at any time the mother is worried, fatigued, or otherwise upset. It is further aggravated when the symptoms appear to be induced by the fear that she is not going to be able to nurse her infant. Whether this disturbance occurs at the menstruation period or at regular intervals, supplementing part of each nursing for a few days with protein milk preferably, or a simple cow's milk formula without the addition of sugar, not only improves the diarrhoea, but heightens the mother's confidence in her ability to successfully nurse her infant.

The rôle of supplemental feeding in an endeavour to correct the gastro-intestinal disturbances of the breast fed infant, while not a great one, possesses value in a certain number of selected types of cases.

THE TESTING OF CLINICAL THERMOMETERS

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THE clinical thermometer is probably the most extensively used instrument in the science of pathology. Not only is it employed by the medical practitioner himself but it is an almost indispensable possession of every household. When, in addition to the large number of clinical thermometers in daily use, their somewhat fragile nature is considered, it is readily seen that in Canada alone many thousands of these instruments must be sold annually.

The clinical thermometer is an inexpensive, widely manufactured article; at the same time it is expected to give temperature readings with an accuracy comparable to that of the more expensive mercury thermometers used in scientific laboratories. No physicist, working in one of these laboratories, would dream of using his thermometer for making accurate temperature measurements unless he knew to what extent, if any, it varied from the accepted standards by which temperatures are measured. Even then he would check his thermometer from time to time, knowing that the indications of the instrument are liable to change. This is especially true when the thermometer is new.

These same considerations apply to clinical thermometers, especially when it is desired to obtain very accurate measurements of the body temperature. For this reason, the large national testing laboratories—such as the Bureau of Standards of the United States of America, or the National Physical Laboratory of England—undertake the certification of clinical thermometers at a nominal fee, rendered possible by the large number handled annually.

The experience of Great Britain during the late war, in this connection, is very interesting Before the war the number of clinical thermome

ters tested yearly by the National Physical Laboratory was about 20,000. These were mostly submitted by firms desirous of obtaining certificates showing the accuracy of their instruments. Early in 1917, when the Government was purchasing large numbers of these thermometers for use in army hospitals, it was found that many were inaccurate or otherwise unreliable. Arrangements were therefore made for the Laboratory to test thermometers purchased by the Government, and later, an Order-in-Council was passed making it compulsory that all clinical thermometers should be tested and passed before being offered for sale, whether for Government or for private use. A charge of six cents each was made for the test, the Laboratory testing as many as one and one-half million instruments a year.

When the tests were commenced, over five per cent. of the thermometers were rejected (in the case of some makers the rejections amounted to forty or fifty per cent.) but after the makers had discussed their difficulties with the Laboratory officials the standard improved, and the average rejection percentage is now less than two. Some English manufacturers regularly have less than one-half of one per cent. rejected, but the Laboratory states, on the other hand, that in one year over thirty per cent. of non-British clinical thermometers failed to pass the test. It may be mentioned that to pass the National Physical Laboratory test a clinical thermometer must not be in error by more than 0°.2F. up to 106° F. Above this point an error of 0°.3F. is allowed.

A legal limit for the errors of clinical thermometers (including also thermometers to measure the temperature of animals) is in force in the State of Massachusetts. Here the practice differs in some respects from that just described, in that manufacturers (under suitable bonds and other safeguards) are allowed to certify their own thermometers. Penalties are established for the sale of inaccurate thermometers, and generally the requirements of the law are severe.

The Bureau of Standards of the United States has drawn up tolerances for clinical thermometers, which are being investigated by various States of the Union, with the idea of introducing uniform laws governing the sale of these thermometers. The Bureau also, as stated above, undertakes the certification of clinical thermometers on request.

Owing to the insistence of certain governments for proper certificates, and also to give an appearance, at least, of a form of guarantee, it has become the practice of many manufacturers to issue certificates of their own with clinical thermometers. In some cases, where firms of good repute are concerned, these certificates may be reliable, but unfortunately this is by no means always the case. Thus it is unwise to place much confidence in the certificate accompanying a clinical thermometer, unless issued by an independent government laboratory. Cases are known of thermometers, certified as having no error at any part of the scale, showing under proper test, discrepancies of several fifths of a degree. There is another feature of this practice, about which physicians and the public generally should be warned. Certain makers of thermometers, sold in Canada, issue certificates with the words "Bureau of Standards" printed in large type and in such form that at first glance it may appear that the thermometer is actually certified by the Bureau of Standards, when this is not the case.

Canada has no regulation governing the sale or testing of clinical thermometers. These instruments, however, are certified on request, by the Surveys Laboratory of the Topographical Surveys Branch, Department of the Interior, Ottawa. The Laboratory has a well equipped thermometry division, where thermometers of various kinds are tested and certified, the equipment including special appliances for dealing with small thermometers of the clinical type.

At the Surveys Laboratory the test of a clinical thermometer consists in comparing its indications with a standard thermometer (which is checked periodically in terms of the Standard Temperature Scale), testing it for retreating or other mechanical faults and for the ease with which the index can be shaken down.

Comparisons are made in a bath with the water in constant circulation, its temperature regulated electrically. The thermometers are read at every 5°F. between 95° and 110° inclusive, and also at one-fifth of a degree above each of these points. The reason for this latter reading is to detect irregularities due to excessive constriction in the bore, etc., which would show themselves by inconsistent readings at the two points one-fifth of a degree apart. In order to test the retreating tendency, a reading of the thermometer is first taken while it is immersed in the bath,

XUM

the temperature is then suddenly lowered several degrees, and the instrument again read. Any clinical thermometer not maintaining its former reading is rejected. Ability to shake down readily is tested by whirling the thermometer on a centrifuge. Any thermometer failing to shake down, when a predetermined speed is reached, is refused a certificate. These tests are made to batches of forty-eight thermometers at one time, and can be conducted very quickly, so that if thermometers are sent in sets of twelve or more the fee is only five cents each.

The maximum error of reading allowed in a thermometer awarded a certificate is one-fifth of a degree for temperatures up to 105°F. and three-tenths of a degree for higher temperatures. In addition, thermometers receiving certificates must be free from mechanical and other imperfections and successfully pass the "retreating" and "shaking down" tests.

THE LIMP OF CHILDHOOD—A CLINICAL LECTURE

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THE limp of childhood constitutes a problem which has frequently to be solved by medical practitioners. The parents are naturally terrified at the prospect of their child becoming a cripple; the young doctor's reputation often depends upon the success with which he handles the case; and the youthful patient himself might well tremble could he but appreciate how the life-long integrity of limb depends upon the skill of the physician consulted.

At the outset it is important to obtain a careful history of the case. Almost invariably trauma, sometimes remote and not of a serious nature, is brought forward as the cause. Inquiry is to be made on the following lines:—

(1) Any definite trauma, preceding the limp by not more than a month or two.

(2) The existence of pain; its site, duration, and character; or

(3) Of any antecedent paralysis of any kind.

(4) The duration of the limp, whether from the beginning of walking or of more recent origin.

(5) The history of infectious disease preceding the discovery of the limp, whether infantile paralysis, measles, chicken pox, pneumonia, scarlet fever, etc.

(6). The existence of any deformity or swelling noticed by the parents in the spine or leg.

The child should then be stripped and made to walk in a good light towards the examiner as well as across his line of vision. Verify the presence of a limp and note whether it is on one or both sides. Look for stiffness of movement in spine, leg, or foot: for the presence of redness, swellings, scars or sinuses, deformity, muscular atrophy, or hypertrophy. In the spine examine for the presence or absence of lateral or of angular curvature. In hip and knee note whether flexion deformity exists. Do the gluteal muscles show wasting? Look for a drop foot, a short tendo Achillis, a genu recurvatum or a pes planus. Does the child toe in or out as it walks: is the gait waddling or stiff? Have the child stoop to the floor and note the curve of the spine and the manner in which it recovers the erect position. Note any habit of supporting spine or legs with the hand. Follow this by placing the child on the examining table or floor, not on a soft couch or bed, and go over the movements of the spine and legs, noting particularly any restriction of motion, which is by far the most important sign of joint disease. Thomas' test for restricted extension of the hip should not be omitted. It will be recalled that in this test the sound thigh is pressed against the body until the spine lies flat on the table. If in this position the thigh on the side under examination cannot be laid flat on the table without difficulty or pain it may be said that hip extension is restricted. During these tests for movement one should look for muscle spasm. Often the child, in its own unsolicited movements, will reveal guarded action in some joint.

Palpate the spine for tenderness, for beginning kyphos, for abscess formation, for fluctuation. Palpate the iliac fossae for the fulness of psoas abscess, the groin for enlarged glands. Feel if the head of the femur is in place, if the great trochanter is higher than it should be according to Nélaton's line if there is any thickening or induration about the joint. Is any paralysis present? Compare the length of the legs by careful measurement from the anterior superior spines to the internal malleoli. Measure for thigh atrophy at equal distances below the anterior superior spines; the calves as well. In the case of the latter one should measure at their point of greatest development. Examine for tenderness over the femoral head and the great trochanter, and ascertain whether jarring the hip joint causes pain.

Palpate the length of the femur for thickening or irregularity, the knee joint for effusion or enlargement, the epiphyseal and joint lines for tenderness. Does undue surface heat exist anywhere? Are the various muscle groups of normal strength? Is the knee joint relaxed, permitting backward bowing? Palpate the tibia for irregularities or tenderness, the foot for abscess formation, limited or painful motion, and for tenderness whether of ankle joint, scaphoid, calcaneal epiphysis, or tarsus generally.

In arriving at a *diagnosis,* stiffness of spinal movements together with muscle spasm are indicative of arthritis, and of the various forms that due to tuberculosis is the most frequently encountered and the most to be dreaded. The discovery of localized tenderness or of a beginning angular curvature will make the diagnosis more clear. Fulness in the iliac fossa with restricted hip extension (Thomas' test) constitutes valuable evidence of psoas abscess. Lateral curvature sufficiently marked to cause a limp is likely due either to infantile paralysis, in which case the history will help, or to congenital malformation of the vertebral column, for the diagnosis of which the x-rays are necessary. In all early cases of bone disease, tuberculosis or otherwise, the x-rays are of little assistance. In the hip joint everything centres about tuberculosis. In a suspicious case showing limited motion, muscle spasm and joint tenderness, it is a safe plan to keep the child at rest for a couple of weeks. If the signs persist after this rest, one may assert that some form of chronic arthritis is present, of which tuberculosis is the most common. Night cries and an evening temperature are valuable confirmatory evidence. There is a form of non-tuberculous hip arthritis which simulates a mild tuberculosis arthritis, and which can be differentiated only by the x-ray findings. This benign arthritis is called pseudo-coxalgia or caput planum (Legg-Calvé) from the flattened appearance of the femoral epiphysis in the x-rays. This may also show fragmentation and the neck of the femur will probably show thickening.

An infectious arthritis may follow measles, chicken pox, pneumonia, scarlet fever, etc. Still's disease, a form of multiple arthritis of unknown origin, is seen in childhood and may cause a limp. It is to be recognized by the presence of swellings and limited movement in other joints, especially the fingers, and by general glandular enlargement. Syphilitic hip disease is to be suspected in the presence of general signs of congenital lues. Suppurative arthritis or epiphysitis of infancy leaves, when recovered from, a deformed and dislocated hip joint, together with scars and a suggestive history.

A mild osteomyelitis about the hip may simulate tuberculosis. It is usually to be differentiated by the x-rays, an examination of the pus, and sometimes by the presence of unmistakable lesions elsewhere in the body.

The presence of coxa vara, whether due to separation of the capitellar epiphysis or to rickets, etc., will be shown by the fact that the femoral head is in the acetabulum while the great trochanter rides high.

The diagnosis of knee conditions is, as a rule, less complicated. Tuberculosis, as at the hip, forms the central point of our investigation. A chronically swollen joint with increase in the surface heat and tenderness at the lower epiphyseal line of the femur is very suggestive of tuberculous infection, especially when following trauma. Beware of syphilitic arthritis and sarcoma, both of which are a frequent cause of error. A syphilitic knee joint may be suspected by the presence of periosteal thickening as seen in a skiagraph, by the presence also of an interstitial keratitis, of Hutchinson's teeth, etc., and will be confirmed by a positive Wassermann test and the usually speedy cure

XUM

obtained by antiluetic treatment. In the case of sarcoma the diagnosis is perhaps to be cleared up most expeditiously by the early removal of a specimen for microscopical study.

Paralysis of the quadriceps (poliomyelitis) is usually manifested by a habit of supporting the knee with the hand while walking, and the deformity of genu recurvatum as a rule indicates weakness of the hamstring muscles. Tenderness at the insertion of the patellar tendon in a child is suggestive of an epiphysitis of the tubercle of the tibia, the so-called Osgood-Schlatter's disease. This runs a benign course.

In the foot the swelling and sinus formation and tenderness of tuberculosis, syphilis and suppurative osteomyelitis are to be sought for. Paralytic and congenital deformities are easily recognized. Limitation of motion in the foot, if unaccompanied by pain, usually means old healed bone disease. As a rule such a foot will show deformity at one side or the other. A short tendo Achillis should be sought for, as being a frequent cause of limp. A flat foot, also, may cause a child to limp, and when this deformity is marked it is well to suspect infantile paralysis. When a child's flat foot is accompanied by marked tenderness over the scaphoid bone, one should suspect the disease known as scaphoiditis or Koehler's disease. This lesion is non-tuberculous; is limited strictly to the scaphoid in the x-ray picture, and runs a benign course. It is probably infectious in origin and is to be differentiated from tuberculosis by the fact that in the latter disease the x-rays show the lesion spreading to the contiguous bones. A lesion probably akin to scaphoiditis manifests itself by pain and tenderness on either side of the heel, at the site of the epiphysis of the os calcis. This disease also is of unknown origin, runs a benign course of several months, and is the result of an epiphysitis of the posterior part of the os calcis. If marked. it may show x-ray changes.

After-care of Infantile Paralysis Cases of the 1916 Epidemic in Brooklyn. — Horace G. Dunham, Brooklyn, urges that, during an epidemic of infantile paralysis of any size, children with obscure indisposition should be kept at rest in bed for several days until the exact nature of their condition can be determined. When paralysis supervenes, it usually appears within a very short time after the initial upset, the average in a series which was investigated being three days after the first manifestation of illness; but often the paralysis comes on twenty-four or forty-eight hours after, so that the patient with a malaise of no consequence need not be incapacitated over a long period of expectancy. Early, neglected patients should never be ignored in treatment later, regardless of the degree of involvement. It is essentially a disease of childhood, therefore in every obscure, acute illness the diagnosis of infantile paralysis should always be a mental reservation, since sporadic cases occur in the community every year. Obviously, to obtain the best results and maximum functional return, these patients must have intelligent care from the outset of their illness. Correct treatment for a definite stage applied at the wrong time is far worse than none, just as surely as exercise pushed to the point of fatigue and muscle exhaustion is distinctly harmful.—*Jour. Am. Med. Ass.*, January 27, 1923.

Transplantation of Tensor Fasciae Femoris in Cases of Weakened Gluteus Medius.—The limp caused by a weak gluteus medius, with marked swaying of the body toward the involved side, and dropping of the hip on the opposite side (Trendelenburg sign), is very noticeable in many cases of poliomyelitis. In the endeavor to alleviate this limp, Arthur T. Legg, Boston, devised the plan of transplanting the tensor fasciae femoris muscle into the outer side of the femur to increase the abductor power, diminished by the loss of power in the gluteus medius. So gratifying have been the results of this operation that he has performed fifteen such operations with very satisfactory results in most cases. The Trendelenburg sign has disappeared, and the lateral swaying of the body has markedly diminished, if not disappeared.—*Jour. Am. Med. Ass.*, Jan. 27, 1923

Case Reports

FOUR CASES OF BRONCHOSCOPY (INCLUDING TWO OF LUNG ABSCESS)

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AMONG the endoscopic cases which have recently come under my observation, exclusive of the frequent swallowing of the large Canadian cents, I have selected four examples of bronchoscopy, not only on account of their intrinsic interest, but because they emphasize a point to which I especially wish to call attention.

Before the days of bronchoscopy, we literally groped in the dark, and fished blindly for foreign bodies through a tracheal opening. This was all changed by the discovery of the x-ray and the bronchoscope, and in the majority of our cases, having accurately located the intruder, we were able to grasp and withdraw it with more or less precision. In certain cases, however, much difficulty was encountered. A change of position of the foreign body, or the presence of inflammation, ranging from stenosis to abscess greatly complicated the process, and only in the hands of a master such as Chevalier Jackson were the results satisfactory.

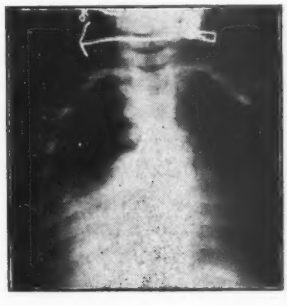
Radiograph by Dr. Colin Ross, showing crown of tooth with abscess cavity.

The fluoroscope again marks a distinct advance in endoscopic surgery. This is the feature that I wish strongly to emphasize. Not only does the fluoroscope visualize and greatly expedite the proper treatment of the foreign body, constantly illuminating its location and position, but with its aid it is seldom necessary to resort to inferior bronchoscopy.

In the first of the cases that I wish to report, the use of the fluoroscope was unnecessary. The second case was attempted without its aid, but I was obliged to call in its assistance. With the third and fourth cases I am doubtful whether I could have succeeded without it.

Case I came to my clinic at the Western Hospital; a child, three and one-half years old, who had swallowed a scarf pin containing a large stone. It was lodged point upwards in the middle branch of the right bronchus and had been in this position for twenty-four hours. From the x-ray picture, the radiographer thought it might be in the esophagus. The esophagoscope was, therefore, first passed to make sure that this was not the case. I then proceeded with superior bronchoscopy and fortunately was able to locate the pin and remove it with suitable forceps at the first attempt. The operation lasted but a few moments. Ether was the anaesthetic given. I used a 5 m.m. tube. The child had no symptoms except a slight cough.

Case II was that of a child of seven years referred to me by Dr. Gordon Campbell from the Children's Clinic of the Montreal General Hospital. She had been ill for seven months suffering from lung abscess simulating tuberculosis. The x-ray revealed a shingle nail situated in one



Radiograph by Dr. W. A. Wilkins, showing nail in right bronchus.

of the branches of the right inferior bronchus in the centre of a large abscess cavity. The child was pitifully emaciated; had a septic temperature; suffered from night sweats, and coughed constantly expectorating foul-smelling pus. We attempted to remove the nail, but after forty minutes spent in unsuccessful search we were obliged to desist on account of the child's condi-

tion. Four days later we made another attempt, this time with the aid of the fluoroscope, which enabled us to locate the nail and withdraw it in a few minutes time. A 5 m.m. tube was used and ether was the anaesthetic administered. The abscess cleared up in about two weeks.

Case III was that of a woman of thirty, the victim of a peculiar accident. The patient gave the following history: while dining at a restaurant on February 21st, 1920, a small, white-headed pin fell from her hat between her face and veil and into her mouth. A sharp, pricking sensation caused her to inhale quickly and the pin was drawn into the trachea. It lodged in the inferior branch of the right bronchus as shown in the x-ray plate. At first the patient had no symptoms; but feeling nervous after her experience, she consulted the family physician on February 23rd, two days after the accident. The doctor's examination of the nose and throat was negative and he assured the patient that he found no evidence of trouble. As there were no symptoms of bronchial irritation the chest was not examined. On the following day she developed a slight cough and a feeling of constriction in the neck immediately above the sternum, but on drinking water this sensation disappeared. In the evening another paroxysm of coughing occurred accompanied by a sensation of smothering; the patient ran into the street for air, and again the symptoms subsided. This condition was probably brought on by coughing which dislodged the pin and forced it up against the subglottic portion of the larynx. This condition sometimes causes asphyxia from spasm, but fortunately in this case, the pin fell back into the bronchus. The patient once more consulted her physician who advised her to have an x-ray taken. This was done the next day by Dr. Wilkins, of the Montreal General Hospital. The plate revealed the presence of a pin about two inches long with a round head the size of a small pea lying in the position already described, point upwards. The only symptoms were an occasional cough associated with dyspnoea. As the patient refused to have the operation done under local anaesthesia, ether was administered, and the pin removed with the aid of the fluoroscope; during the removal I was ably assisted by Dr. Wilkins. To diminish shock and control the bronchial secretions the patient was given one-quarter grain of morphine with atropin 1/150 gr. half an hour before the operation.

The interesting features of this case are: The unusual circumstances under which the pin found its way into the patient's bronchus; the negative findings in the physical examination, and especially the valuable assistance of the fluoroscope in locating the pin, and enabling the operator to grasp it with precision and facility, thus saving unnecessary groping.

Case IV was that of a woman, aged forty, who was referred to me by Dr. Charles Vipond, who stated that his patient had had an abscess of the lung for the past year and a half. She had been a patient in two other hospitals, and was finally taken to the Western Hospital where the x-ray disclosed the presence of a foreign body in the inferior branch of the right bronchus, close to the arching dome of the diaphragm near the spine. The abscess had been drained by the external route, but as her condition did not improve I was requested to see the case. The foreign body proved to be the crown of a posterior molar tooth swallowed in a dentist's chair a year and a half previously. I decided to do a bronchoscopy, and a suitable table was specially constructed in the x-ray room to get the maximum fluoroscopic result. The table was tilted at an angle of forty-five degrees in order to facilitate drainage. The x-ray tube was placed thirty-four inches from the chest wall. Owing to the patient's condition and prostration, and also to the extent of the abscess cavity, we were obliged to do the operation under local anaesthesia. A 7 m.m. bronchoscopic tube was passed, after cocainizing the larynx and trachea with a ten per cent. solution. The patient constantly expectorated foul-smelling pus, obscuring the vision and interfering greatly with the progress of the operation. Further complications were caused by the fact that bismuth had been injected into the abscess cavity, making shadows that resembled foreign bodies. After suction and coughing had evacuated this cavity, I was able to see a small ulceration in the inferior branch of the right bronchus. I passed my probe through the ulceration in the mucosa and touched a hard object firmly imbedded. During the operation I continually checked up my findings with the fluoroscope. Finally, I grasped the hard object which was the crown of the tooth, but it slipped from my forceps. Substituting a second pair I succeeded in holding it securely and removed it together with the bronchoscope. The duration of the operation was forty-five minutes, and the patient, though very weak, made a slow but satisfactory recovery. This case fur-

ther emphasizes the advisability of the prone position for the extraction of teeth. I have known several deaths as a result of the lack of this precaut'on.

Intra-tracheal anaesthesia is made use of in all operations on the upper air tract; and since adopting this method, I have had no cases of post-operative pneumonia or lung abscess.

I cannot conclude this paper without once more calling attention to our indebtedness to Chevalier Jackson, whose genius and perseverance has placed this work upon a sound basis on this side of the Atlantic.

A CASE OF DIABETES MELLITUS COMPLICATING PULMONARY TUBERCULOSIS

MALE, aged 29. In June, 1921, reported because of weakness, loss of weight (20 lbs.), cough and expectoration, and gave the history of a small haemoptysis, occasional night sweats, and marked polyuria. Both family history and previous history were negative. During the summer of 1917, excessive thirst and polyuria had been noted. There had also been a susceptibility to so-called "colds" which had become more frequent. The cough did not disappear between the attacks. These symptoms had become aggravated a few months prior to his reporting for examination. On physical examination his general condition was found much below par; his chest was well shaped; there was marked retraction at the apices on both sides. Intrapulmonary moisture was noted in the right upper lung and pretty much throughout the left lung, with an area about the size of a silver dollar immediately inferior to the left nipple, highly suspicious of excavation. His daily temperature ranged from 99.2° to 100°, the pulse was 94, and his respirations were hurried. Sputum analysis showed the presence of tubercle bacilli, and these have persisted in later examinations. Urinalysis showed acetone, and 9% of sugar. Blood sugar in August was 0.3% and in September 0.2%. The tuberculin complement fixation test 3 indicating much tuberculous involvement with a high grade of resistance. On four occasions since June 1921, by ε modified starving method we have succeeded in bringing about sugar-free urine, but this almost invariably led to exacerbations of the pulmonary lesion. Weight in June, 1921—113½ lbs. Present weight—112¼ lbs. There have been three periods varying from two to four weeks with no elevation of temperature. The temperature on exacerbations has reached over 102 degrees. Prognosis—decidedly unfavorable because of the complications.— F. H. PRATTON.

BICHLORIDE POISONING

From the Bulletin of the Harvey Club, London, Ont.

TWINS, 2 years of age, were found playing with a bottle contaning 7½ gr. tablets bichloride of mercury (blue). Their hands, faces and clothing were considerably stained wth the blue of the tablets. Vomiting was induced by inserting the finger in the throat after copious draughts of milk had been given. One twentieth of a grain of apomorphine given hypodermically caused immediate vomiting followed rapidly by drowsiness and stupor which continued for an hour. No cyanosis or marked disturbance of pulse or respiration developed. The children rapidly recovered from their stupor; one complained of a sore mouth and lip, which disappeared within twenty-four hours. Nephritis or haematuria did not develop.—G. W. A. AITKIN.

The Menace of the Diagnostic Throat Culture in Diphtheria.—In the interests of clear medical thinking and of our patients, Jesse G. M. Bullowa, Reginald C. Hardman and Harry R. Litchfield, New York (*Journal A. M. A.*, Jan. 27, 1923), emphasize the fallacies that may result from the throat culture diagnosis of diphtheria, and the consequent delay in making the diagnosis from a laboratory report instead of from the clinical picture. The dangers of depending on the diagnostic culture are presented both statistically and by the report of individual cases.—*Jour. Am. Med. Ass.*, Jan. 27, 1923.

XUM

Retrospect

HYPERTONIC SOLUTIONS*

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THE effects of administering hypertonic solutions have been studied for many years, indeed as early as 1884 Brasol[1] observed hydraemia in animals after intravenous injections. This was soon verified and enlarged upon by others, notably Kilkowitz[2] and Magnus[3]. Such solutions were first employed in man by Velden[4], who used a ten per cent. solution of sodium chloride and noticed that the coagulation time of the blood was shortened; he accordingly applied it in haemorrhage with good results. This has since been affirmed by others and Schenk[5] and Blumel[6] have shown the same effect with hypertonic solutions of calcium chloride and sodium citrate. It is supposed that some substance promoting coagulation is drawn from the tissues to the blood.

Rapid reduction of intra-ocular tension in glaucoma was accomplished by Sansum[7] by means of the slow intravenous administration of glucose solutions (36 to 50 per cent.). Erlanger and Woodyatt[8] recommended 25 per cent. intravenous glucose injections in shock.

As a therapeutic measure in combatting serious diseases Litchfield[9] strongly advises the use of hypertonic glucose solutions; he points out that besides specific effects in disease due to micro-organisms we have to deal with dehydration, intoxication and nitrogen starvation. In considering these there are many involved problems incident to biochemical processes. All observers are agreed that for such conditions glucose solutions are better than those of salt because they are non-toxic, easily metabolized, and spare nitrogen considerably. Lusk has also demonstrated that to a certain extent, in addition to its food value, glucose has a stimulating effect on cell activity. The addition of gum acacia to glucose solutions seems to take the place of plasma proteins in holding water in the circulation. The beneficial effects are most striking in those patients who are critically ill with influenzal pneumonia[10].

Recently Stejskal[11] has shown that hypertonic solutions cause a lowering of all glandular secretions, even of the endocrine variety and this effect has been applied clinically in many conditions of hypersecretion. He generally used fifty per cent. dextrose solution and mentions particularly reduction in size of the thyroid gland with marked alleviation of symptoms in fourteen out of fifteen cases of advanced hyperthyroidism.

In a very intensive study of the effects of solutions of various concentrations on cerebro-spinal pressure Weed and McKibbon[12] found that hypertonic intravenous solutions of sodium chloride, sodium bicarbonate, sodium sulphate and glucose cause a marked fall, accompanied by an equally marked decrease in the size of the brain. Following this, Cushing and Foley[13], and Sachs and Belcher[14] made use of hypertonic salt solutions to reduce the size of cerebral hernias and to lessen oedema of the brain. Wynn,[15] thinking that this reduction of intra-spinal pressure might be of advantage in cases of neuro-syphilis by favouring the distribution of the arsenical solution throughout the subarachnoid space, made use of hypertonic solutions in several cases before administering the arsphenamine, but obtained no results that he considered of value. Quite recently Barach, Mason, and Jones[16] report with much detail the effects of the administration of hypertonic salt solution upon the blood volume and certain related blood constituents. Their most striking result was that of marked increase in the plasma volume within one or two minutes after an injection of 100 c.c. of fifteen per cent. sodium chloride solution. This increase amounted to from fifteen to thirty per cent. of the total blood volume, representing a pouring out into the blood from the tissues of from 500 to 1,200 c.c. of fluid. The greatest increase occurred about thirty seconds after injection. From this on it gradually diminished, returning to normal within three and one-half hours. In one case in which the plasma volume was abnormally low before injection, the increase lasted four days. The normal isotonic concentration of the blood was in the main, preserved. There was a close parallelism between blood volume and total volume of chloride and also between the blood volume and chloride concentration. From a

*From a review presented at a meeting of the Osler Reporting Society, December 20th, 1922.

study of their charts it can be seen easily that the increase in total blood volume is almost entirely due to the increase in plasma volume. They draw attention to a more accurate basis for comparing the blood volume and the blood chlorides by calculating the number of cubic centimeters of water theoretically necessary to bring the increased chloride to an isotonic state. Applying this to their findings, in some instances the figures agree and in others there is a divergence. The divergence, however, is only seen after a second injection, when, owing to the excess of chloride, there is such an increase in blood volume that the other factors concerned in the maintenance of osmotic pressure are disturbed; that is, the percentages of such substances as glucose, sodium bicarbonate and other salts and colloids are lowered, but by the excess of chloride the physiological balance is maintained. In one case they used 100 c.c. of 1,500 per cent. Ringer's solution without relief of headache and with no fall in spinal pressure. The serum was deeply haemolized however, due apparently to the potassium in Ringer's solution, whereas in the cases injected with hypertonic salt solution, there was no haemoglobin in the serum. Alterations in the red blood cells were confined to decrease in number due to dilution, and temporarily lessened fragility. No significant changes took place in the oxygen content of the venous blood and the carbon dioxide content was not disturbed. Clinically, no harmful effects followed the administration of hypertonic salt solutions. Their six brain tumour cases were all symptomatically improved by relief of headache and stupor. The alleviation of the symptoms lasted one day as a rule. One case was relieved of severe symptoms for three days; the return of the disturbing symptoms was very gradual.

Since the presentation of this paper we find that Dowman[17] administers a saturated solution of magnesium sulphate by mouth in all cases of skull injuries in which immediate operation is not indicated. For some cases with greatly increased intracranial pressure he supplements intravenously, a thirty per cent. sodium chloride solution.

Although the action of the hypertonic solutions is, at the best, of short duration yet their therapeutic value cannot be questioned in a large number of extreme conditions and it is to be hoped that their use will be given wider application.

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EPILEPSY

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UNDER the term epilepsy are now grouped a range of phenomena motor, sensory, and psychic. Cases are cited as epileptic in which sensory aurae alone appear. Jacksonian motor fits without loss of consciousness are classic; momentary lapses of consciousness without tonic or clonic spasms are well known; cases of localized spasm preceding general convulsive attacks by a year or longer are also cited; and dream states and attacks of furor with amnesia are often not necessarily associated with convulsive attacks ca'led epileptic. So wide is the range of phenomena that some authors now speak of 'the epilepsies.' But 'essential' epilepsy, namely that condition characterized by periodical attacks of loss of consciousness and tonic and clonic spasms remains a well known and recognized syndrome.

The diagnosis of what is apparently a typical essential epilepsy, but more especially of atypical attacks, is sometimes attended with difficulty. Sir Robert Armstrong Jones, for instance, in the *Medical and Surgical Survey*, January, 1922, enumerates twelve distinct morbid conditions which must be differentiated, while Patrick (*Jour. A.M.A.*, September 23rd, 1922) enumerates thirty.

Leaving out of consideration those cases in which a physical condition causing convulsive or epileptiform phenomena can be demonstrated, such as uraemia, brain tumour, syphilis, and arteriosclerosis, as well as those cases in which

the symptoms, though epileptiform in character are undoubtedly hysterical, there are cases in which diagnosis remains doubtful until cleared up by close observation extending over a prolonged period. In his article Patrick draws attention to a few common errors and difficulties. He emphasizes the importance of slight or odd attacks in children and young people; a transient dreamy state, a momentary stare, a causeless stop in play, a sudden feeling of fright, a sudden sensation of taste or smell, a sudden lonesome feeling, a sudden drop to the floor. Generally, he says, observation will show them to be epileptic in character and not to be lightly passed over and attributed to 'autointoxication,' constipation, or digestive disorder.

It seems beyond question that the onset of typical epileptic seizures may be preceded by such symptoms. The diagnosis of epilepsy from hysteria is often difficult, more especially when the patient cannot be observed during the attacks and one is obliged to rely on the patient's or the friends' descriptions. The possibility of hysterical attacks occurring in a patient afflicted with genuine epilepsy must be borne in mind. I have seen at least one case in which this occurred. A boy, aged nineteen, subject to major epileptic attacks since early childhood, lay on his bed kicking and struggling and holding his mouth so wide open that he nearly choked himself. Three or four people were holding him down. His pupils reacted promptly to light. As he had his boots on, no time was spent in attempting to examine his plantar reflexes. Pressure over his supraorbital notches and a few words whispered in his ear brought him into a sitting position, and he declared that he was all right. He was not at all dazed or stupid.

Practically, we rely to a very large extent on the nature of the fit in differentiating epilepsy from hysteria. The fall attended with injury, the bitten tongue, the involuntary urination, the change of colour, the loss of consciousness, the tonic and clonic convulsions, the headache and sleep following the attack, are indicative of epilepsy. Should we have the opportunity of observing the patient during the attack we would find rigid pupils and plantar extension or abolished reflexes.

But it is in the atypical and less severe attacks that we have the greatest difficulty in discriminating between epilepsy and hysteria. Lapses of consciousness may be of emotional origin. Patrick describes such a case. A chauffeur, aged twenty-four, had fallen in a fit of unconsciousness seven years previously, during a dispute. He did not know whether he had had a convulsion. In an hour he was all right. During the last few years he had several times experienced a queer feeling as if he might faint or lose consciousness. Two days before, when about to start his car, one or both hands suddenly became numb, he felt dizzy, and then became unconscious, drooping over his wheel. In a few moments consciousness returned, but he felt dazed and confused. He was helped into the house, put to bed, and went to sleep. Next morning he had a headache which persisted. Results of examination were negative. The attack resembled petit mal very strongly. But his family history indicated a neuropathic taint, and it was ascertained that he had lately been subjected to severe emotional stress. Dr. Patrick concluded that the attack was hysterical. After a quiet reassuring talk, the patient continued well and went through the war without nervous incident.

A thorough psychiatric examination is necessary in all doubtful cases. The emotional lability and suggestibility of an hysteric on the one hand, and the egotism, irritability, tendency to suspicion, and want of suggestibility of the epileptic on the other, are aids to diagnosis. Errors in diagnosis may also arise from overlooking the well known fact that epileptic fits may be the first sign of organic brain disease and remain the only sign for some time. Patrick cites a case in which the patient had epileptic fits seven years before signs of brain tumour appeared.

Also, idiopathic epilepsy may assume a local or focal type, as in the case of a man who had clonic spasms of one arm without loss of consciousness for about a year. Attacks of general convulsions with loss of consciousness then occurred at intervals. Results of examination were negative. Under treatment with bromides the attacks ceased. He was seen again fourteen years afterwards. During this time he had been perfectly well.

Curschmann cites a case in which spasms of the muscles supplied by the facial nerve and of the right arm and leg appeared. They occurred frequently but did not last long. During the period of ten weeks of cortical epilepsy, symptoms of multiple sclerosis appeared; spastic gait, nystagmus, and pallor of temporal side of the optic discs. This author reports several cases of cortical spasm in multiple sclerosis, and warns against mistaking this for a sign of cerebral tumour.

Editorial

INDUSTRIAL HEALTH WORK

IN a recent issue of *The Annals of the American Academy of Political and Social Science*, Professor Todd, of Chicago, called attention to the sharply diverse opinions that exist as to the motives and merits of what he terms "industrial welfare work." Whatever may be the arguments from the standpoint of etymology for the use of the word "welfare" in this connection, it is, nevertheless, most unfortunate that an expression long associated with charitable and philanthropic endeavour should be applied to activities undertaken by industrial concerns to advance the health and safety as well as to improve the working and living conditions of their employees.

As a matter of fact, health, or "welfare," work is not a substitute for the efforts to bring about either security or continuity of employment; nor will it take the place of the attempt to introduce proper working conditions, reasonable hours of labour, fair wages or any other fundamental factor in industrial relations. There must be nothing about this work that savours of paternalism or philanthropy; expenditures connected with it must be totally unrelated to wage schedules. Humanitarian or altruistic motives are by no means of primary importance and in the ultimate analysis we may reduce the proposition to the following simple formula: Industrial health, or "welfare," work must be advantageous to both employer and employee if it is to succeed, and economically sound if it is to last.

In other words, its permanence will depend upon its dollars and cents value, and its effectiveness upon the degree of cooperative effort. This does not mean that intangible returns must be translated into financial equivalents but that the sum total or results must justify the operating overhead charges. The ramifications and influences of industrial health, or "welfare," services are far too intricate and subtle to lend themselves readily to precise calculations, and the intangible values are much more important than those which may be expressed in terms of dollars and cents but this does not constitute a justification for disregarding monetary returns.

Let us examine a few of the possibilities. In connection with Safety Services, much time and effort is expended in calculating frequency and severity rates whereas comparisons of the percentages of time lost on account of accidents are rarely considered. The latter figures have a very definite cash value, while the former rates are primarily of statistical importance.

Take First-Aid Departments which undoubtedly prevent infections and other serious complications, not to mention their importance from the standpoint of reducing disabilities, deformities and deaths, yet no one can hazard even an approximate guess as to what all these factors amount to in terms of dollars and cents. On the other hand, to every first-aid dressing there may be assigned a definite financial equivalent for the service rendered and there is, furthermore, a saving in time which lends itself readily to monetary calculations. Just what these values are it is reasonable to investigate and they should be sufficient to establish the economic soundness of the department.

During 1922 the First-Aid Department of a well-known Canadian industrial concern cost $2,700 for its operating overhead charges; the number of first-aid dressings totalled 3,629. Each dressing was worth at least $1.00 and in addition, each case dressed would have taken

XUM

more than one hour of company time had the Department not been maintained in the plant. The credit for services rendered therefore amounted to $3,629 plus a saving of 3,629 hours of company time at the average wage of forty-three cents per hour; total cash returns from the Department, $5,189.47.

In the case of Industrial Medical Services, there are ample definite credit items to more than justify the maintenance expenditures and the same is true of Insurance Services.

In view of all this, are we not warranted in looking askance at academic discussions of *motives*. Do not the *merits* depend very largely upon the value of the services rendered and should we not eliminate the word "welfare" from descriptions of work of this nature since all such efforts are really concerned with health supervision or adjuncts to it?

B. L. WYATT

RECENT INVESTIGATIONS ON THE CLINICAL USE OF ARSENIC

TWO interesting papers which were read before the Association of American Physicians at its last meeting in Washington, on some experimental and clinical observations on the therapeutic effects of arsenic are important and worthy of being brought to the notice of the profession in general. The first of these is a paper by Dr. Rudolf and Dr. Bulmer, of Toronto, on "The Fate of Arsenic after intravenous or intrathecal injection, with special reference to its action on the spinal cord." On account of the poor results obtained by clinicians in spinal syphilis from arsenic-containing drugs, however introduced into the body, much controversy has arisen, as to whether arsenic has any special action on the virus of syphilis in the spinal cord. Drs. Rudolf and Bulmer have attempted to solve the problem by giving arsenical medication to animals and then analysing the tissues of the cord to find if the drug reached them at all. On giving a normal rabbit a dose of phenarsenamine proportional to what is given to man, no arsenic could be demonstrated in the cord one hour after intravenous injection. The experiment was repeated several times with the same result; afterwards the dose was repeated increased in amount eight or nine times. All the rabbits were killed an hour after the intravenous injection. The amount of arsenic in the blood was found to rise steadily with each increased dose. The amount in the liver rises slowly at first and later very rapidly, but none was discoverable in the tissues of the cord.

Failing to detect arsenic in the cord after intravenous injection the investigators next tried the intrathecal route. The first problem was "Would the arsenic, if introduced into the lower part of the spinal cord, diffuse upward?" Their experiments indicated that it did not do so to any extent. The writers found that in order to get any arsenic into the cord in this way it was necessary to inject a very large amount, and under considerable pressure. We next tried whether a solution of arsenic in blood serum would favour the introduction of arsenic into the cord, but obtained no definite result. When one considers the small amount of arsenic, if any, that reaches the cord after intravenous administration, even when this is supplemented by intrathecal injection next day, it seems unlikely that any good effects in the treatment of cerebro-spinal syphilis will be induced by the intravenous use of phenarsenamine even when enhanced by the intrathecal injection of arsenic-containing blood serum.

Another interesting paper read by Dr. Kapps, of Chicago, at the same meeting, was on the "Value of Arsenical Treatment of chronic Infectious Endocarditis." The diagnosis of chronic infectious endocarditis is somewhat difficult to make because the patient is often up

and about, and may consult the physician only after weeks of malaise, weakness, slight fever, palpitation and loss of weight. It is some time before the true nature of the infection is revealed by the appearance of cardiac murmurs, and symptoms indicative of emboli. A review of the literature brings out the frequency of an earlier and supposedly, a healed rheumatic endocarditis. The mitral valves are most frequently involved, but the aortic may also be the seat of inflammatory trouble. Until the year 1885 Osler had seen only the acute types of septic endocarditis all terminating in death within three months. From 1885 to 1909 he observed ten cases of chronic infectious endocarditis, running a course of from four to thirteen months, all ending fatally. In a paper published in 1909 he drew a clear picture of the condition, emphasising the frequency of a previous rheumatic infection and calling attention to the daily remittent fever, the petechiae, the occurrence of emboli in the brain, particularly in the retina, and to the occasional development of characteristic painful nodular swellings under the skin. Soon after Osler's publication, Billings reported fourteen cases of the chronic type. One patient only recovered, but she had received no specific therapy. During the past twelve years Kapps has treated all of his cases of chronic infectious endocarditis with daily injections of sodium cacodylate, usually given intravenously, and continued over a period varying from seven weeks to four months. In many of his patients, bacteria in blood cultures were not obtainable although the other clinical findings were sufficiently characteristic for making the diagnosis. Eight cases however, were certified by the finding of blood cultures. Two of these died, but six survived. The duration of the disease in the fatal cases was six and thirteen months respectively. The only specific therapy attempted was this prolonged use of sodium cacodylate in doses of one to four grains. Rest in bed was insisted upon during the period of treatment. In all the cases which recovered, the bacteria after treatment were unable to be found in the blood. Kapps own experience with the arsenical treatment inclined him to believe that the drug in ordinary doses is inhibitive rather than bactericidal, and that treatment should therefore be continued over a long period in order to obtain any permanent results.

THE DIAGNOSIS OF SMALL INDEFINITE MASSES IN THE BREAST

AN interesting paper on this subject (*British Medical Journal*, January, 1923) which has its message for every practitioner of medicine was read before the Chelsea Clinical Society by Mr. Fitzwilliams, surgeon to St. Mary's Hospital, London.

The diagnosis of small, undefined masses in the breast presents peculiar difficulties. At the same time a correct diagnosis is of such great importance and a wrong diagnosis carries with it such awful penalties to the patient that the subject is worth serious consideration.

The smaller the mass, the more one is inclined to put it down as inflammatory or benign and defer immediate action. Such a deferment may prove disastrous. Malignant growths must all begin small and this is the most favourable moment for extirpation. The proportion of small malignant growths to large ones that come under the eye of a careful surgeon in Mr. Fitzwilliams' experience is not one in six.

We have all heard of cancer cures, numerous old and impossible ones; more recently we have the modern ones, x-rays, then radium, then selenium and now back again to x-rays with larger and more expensive apparatus. Each new cure holds out just sufficient encouragement to lure on and, I am afraid, to delude

XUM

the practitioner into thinking that at last a cure is about to be discovered.

For the present unfortunately we are only at that stage in which it is excision and only excision on which we can rely with any certainty, and cure can be expected only when the case presents at such an early stage as will permit of its radical removal.

In dealing with tumours of the breast it is not recognized sufficiently clearly that the vast majority are malignant. It is computed that eighty and eighty-five per cent. of breast tumours are malignant, and at most fifteen to twenty per cent. innocent, or innocent in their early stages. This means that a lump in the breast, however small, is much more likely to be malignant than to be innocent.

We must remember, also, that there are a large number of cases which, although innocent to begin with, later take on malignant characters. The symptoms of malignancy as stated in textbooks are all late symptoms; adherence to the skin or to adjoining structures, enlargement of glands in the axilla, retraction of the nipple, and shrinkage of the organ are all late signs. The presence or absence of a tumour felt with the flat of the hand so insisted upon in the past is quite fallacious. Our teaching has been grievously at fault, as it has not laid sufficient stress on the necessity for an immediate and thorough investigation of every tumour. No surgeon has any right to tell a patient that a lump which has no definite characteristics is nothing. Malignant disease must start in a small area, yet how few cases are operated upon at this stage. Yet by the time they can be diagnosed with certainty they can no longer be considered early cases. They have spread to such an extent that they show positive symptoms of malignant disease, and the prognosis has changed from being favourable and has become grave. What ought to be done in early cases? The surgeon should confess at once that by the ordinary methods of inspection, palpation, etc., it is impossible to make an absolute diagnosis. All that can be said is that as yet there are none of the characteristic features of malignancy; the surgeon however must not sit down calmly and deliberately and wait for these features to develop; something more must be done. The sporting chances are against any delay. It should be pointed out to every patient over thirty that the microscope is the only method of arriving at an absolute diagnosis, and the great advantage of making an absolute diagnosis at the earliest possible date should be emphasized. Mr. Fitzwilliams warns us also of the danger of making light of a tumour merely on account of the age of the patient. He states that he has known two cases of cancer of the breast, which occurred under twelve years of age, and many which occurred in the 'teens. Rodman collected the history of 5,000 cases of which nearly ten per cent. occurred in patients under thirty years of age. The surgeon should place the responsibility for any delay solely upon the patient herself, and emphasize the fact that delay means spread of the disease, and to wait for the development of characteristic signs may involve most serious consequences. Certain information can only be obtained by operative means.

Exploratory operations for removal of the lump alone should be undertaken only when the preponderating evidence is in favour of benignity. Where strong suspicion of malignancy exists the whole breast should be sacrificed. In border line cases the mass alone may be removed but always with the cautery and not with cold steel, because of the very real danger of liberating cancer cells or whatever may be the active metastatic agent and setting up through the opened vessels a blood metastasis to distant and inaccessible parts.

The recent education of the public upon the cancer problem has resulted in an increasing number of women presenting themselves for examination of the breast, and has thus added to the diagnostic responsibilities of the physician many fold. The profession must be prepared to cope with this added responsibility by developing a more detailed knowledge of the early changes in the breast and more acumen in their differentiation.

Editorial Comment

RUBBING ALCOHOL

At several of the recent Annual Meetings of the Canadian Medical Association, and also frequently at the meetings of local societies, attention has been called to the poisonous properties of Columbian spirits and methylated alcohol, and to the danger of toxic symptoms developing from their external use. Owing to the high price of pure ethyl alcohol due to the excise, its use externally both in hospitals and in the majority of private houses has been practically prohibited. It is, therefore, with pleasure that we call the attention of all our readers to the denatured alcohol now offered to the public under the name of "Rubbing Alcohol" by the Dominion Department of Health. The denaturant employed is di-ethylphthalate which appears to be very suitable for the purpose owing to its stability and freedom from colour and odour while at the same time its taste renders the spirit quite unfit for beverage purposes. Among its other advantages are its ready miscibility, suitable volatility and high boiling point; it leaves no sediment, and is not very poisonous, but possesses the slight antiseptic properties of the phthallic group. It is also very definite in its chemical reactions so that its presence can be readily recognized by chemical tests, which are easy to carry out. Two and one-half gallons of this diethylphthalate, along with five grains of brucine to increase the bitter taste are added to one hundred gallons of ethyl alcohol to form this 'rubbing alcohol' which appears eminently suitable for all forms of external applications, and may be obtained at a moderate cost.

ON HICCUP

Hiccup is for the most part a temporary and very disturbing affection to the sufferer, but may become very persistent, and continue for hours and days, and very seriously interfere with the comfort and health of the patient. Recently we noticed the account of an epidemic which had hiccup as its important symptom. In a recent number of the *British Medical Journal* there is a short editorial on the subject of hiccup. Mentioning that a correspondent had sent the following extract out of a book published a couple of years ago, entitled "The Humours of a Parish, and Other Quaintnesses" written by the Rev. W. B. Money, in which the following directions are given for curing a persistent hiccup. The feat is not quite easy to perform, but it seems unlikely that it can have any injurious effect. The directions are as follows: "Take a tumbler and fill it about half full of water; put your lips to the opposite side of the rim to what you ordinarily would in drinking, tilt the glass away from you instead of towards you, and so sip the water. That is all, but you will want nothing more. You will be a healed, quiet, restful man" Mr. Money declares that he has never known it to fail, and relates some interesting experiences. Mr. Money's prescription seems to be nothing but an ingenious device for inducing the patient to keep his lungs for a time in an average condition of distension though he can still breathe. Ever since the classical experiments of Hering and Breuer we have known that on distension of the lungs the afferent nerve endings of the vagus are excited, and the corresponding impulses on reaching the respiratory centre inhibit inspiration. It is also possible that these impulses may inhibit the violent respiratory spasms of hiccup, and may secure temporary relief which may persist for a very considerable time and in many cases be permanent.

MEDICAL HISTORY

A Late addition to the curriculum is the history of medicine: and the reasons advanced for adding an additional burden to the already overloaded medical course and thereby helping to increase the total number of years of study, must be almost self-evident. The physician if he is to retain his status in society must be more and more a cultured gentleman. He must be more than "a dispenser of pills and powders." He must be a leader in the community, with high ideals. His aim should be "how much can I contribute rather than how much can I get out of this community." The study of the development and evolution of medicine can play a prominent part in stimulating such an altruistic attitude of mind.

XUM

It is customary to dwell upon the lives of the fathers of medicine, Æsculapius, Hippocrates, Galen, etc., but that is not absolutely essential. There is plenty of material at our very doors. One could peruse with advantage the story of the splendid achievements of the pioneers in our own province—the many Dr. McClures that have come and gone, "untolled, unknelled and unsung." If one could visualize the country doctor on the dark and stormy nights with his constant companions—the saddle bags and the faithful horse, a picture that has inspired our Canadian poet Drummond in "The Habitant"—one could appreciate the unselfish motive that prompts the doctor to risk life and limb, simply that he may be of help and comfort to some poor unfortunate patient. Nor can one be unmindful of the picture of such types as Grenfell of the Labradors or Trudeau of Saranac Lake. Any undergraduate is thrilled by a narrative of this type and of necessity will go into practise "a bigger and better citizen."

It seems a misfortune that few such records are available for students. The late Dr. Canniff, of Belleville, is the only one that has taken the initiative in this matter. "The Medical Profession in Upper Canada, 1783-1850" is a treasure house. Sir William Schooleny of the Hudson's Bay Company has done valuable work for our future historians. While searching the archives at Ottawa for the material of the history of his Company, he has saved all references to medical items, doctors, epidemics, drugs, etc. It is to be hoped that all records, photos, instruments, etc., will be preserved and made available for our future historians. J. W. C.

Bismuth Salts in the Treatment of Syphilis.—Escher (*Ann. de l'Institut Pasteur*, December, 1922, p. 839) has used trepol and neo-trepol in a large number of cases of syphilis in soldiers with very satisfactory results. In the present communication he analyses the results of treatment with trepol(tartaro-bismuthate of sodium and potassium) in 60 cases. At first he gave courses of ten to twelve intra-muscular injections of 0.3 gram. But such doses frequently caused stomatitis and gingivitis, and occasionally albuminuria, and he therefore reduced the dose in later courses to 0.2 gram, given every fourth or fifth day. In 10 cases in the primary stage with a positive Wassermann reaction in the blood the parasite disappeared from the chancre in twenty-four to fifty-six hours after the first injection, and living spirochaetes were never found after forty-eight hours. The swelling of the inguinal glands subsided more rapidly than after any form of arsenical treatment, and parasites were not found in the serum aspirated from these glands six to eight days after the first injection. The chancres healed rapidly, and secondary rashes never appeared during the treatment. The Wassermann reaction became negative after the first course in 6 cases, in 2 at the end of the second, and in 2 between the second and third courses. Forty cases in the secondary period were treated. Mucous plaques began to heal on the fifth or sixth day, and parasites disappeared from them in thirty-six hours. Roseolar rashes disappeared in every case after the third injection. Pigmentation of the scars was much less frequent than after arsenical treatment. In 30 of these cases the Wassermann reaction became negative after one, two or three courses of trepol. Pain at the site of injection was rarely met with after "painless trepol." Stomatitis and gingivitis could be controlled by thorough attention to the teeth and mouth-washes when doses of 0.2 gram were given. Albuminuria, which occurred in 9 cases, cleared up on cessation of the drug and a vegetarian diet. The presence of clusters of renal epithelial cells in the urinary deposit was a warning of the imminence of albuminuria.—*British Medical Journal*, January 27, 1923.

Otitic Abscess of the Cerebellum—The case reported by C. F. Yerger, Chicago, is of special interest, (1) because of the difficulties it shows in diagnosis (some cases will give few, if any, localizing signs); (2) because a cerebellar abscess was found on surgical exploration of the posterior cranial fossa, and (3) because the necropsy report was added to the clinical record, thereby making the case record complete.—*Jour. Am. Med. Ass.*, Jan. 27, 1923.

Men and Books

MR. E. Z. MASSICOTTE ON THE PHYSICIANS AND SURGEONS OF THE XVIIth AND XVIIIth CENTURIES IN THE DISTRICT OF MONTREAL[1]

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McGill University, Montreal

IT is a remarkable fact that although Canada has never, in the three hundred years of her existence, lacked men of education and parts who have practised the healing art within her borders, and who have left their impress on the medical thought of their time and community, no attempt has yet been made to systematize or compile a history of Canadian Medicine. This circumstance is the more surprising in view of the progress that has been made in this regard by our neighbours to the South, whose cultural history so little antedates our own, and whose contributions to early medical science and journalism, and standards of higher professional education can scarcely be considered to have been in advance of those of the Canadian profession of the same period, yet whose early medical history bulks large in the current text-books on the history of Medicine, and forms the subject of several important volumes.[2] The medical tradition of Canada is as picturesque and important in its way as is the rest of her history, and the hiatus that exists here must be considered to be due rather to the relatively late development of what may be termed the historic sense among us, than to any lack of intrinsic interest.

Authentic data for historical research along these lines are not lacking, for both Dominion and Provincial Archives have been faithfully preserved, and in recent years much earnest digging and careful indexing have been done for the benefit of future historians. Several valuable monographs of a local character have also been published, of which Canniff's *Physicians of Upper Canada* and Dr. H. S. Birkett's admirable study entitled *A Brief Account of the History of Medicine in the Province of Quebec*[3] are among the most important. Of fundamental value, and of direct interest to the profession in the latter connection, is the recent work of Mr. E. Z. Massicotte, Archivist-in-Chief of the District of Montreal, who has brought to bear upon the social history of this part of the country, during the early period from the foundation of Montreal to the British conquest of French Canada, the garnerings of thirty years of quiet industry among the original notarial documents under his charge. Passing from a study of those following the various trades and professions, he has now arrived at that of Medicine, and has published, in the *Bulletins des Récherches Historiques*, and *l'Union Médicale*, a series of articles upon the Physicians and Surgeons of this district (a) from 1642 to 1700*, and (b) from 1701 to 1760.* These consist of notes culled from various property-sales and transfers, marriage contracts, wills, etc., giving the names, origin, location, civic status or other data about the various persons practising medicine in this locality, as these have become available. Such information is especially important because the period covered is that *before* the Medical Act of 1788, for the granting of licenses, was passed, and therefore before any official register existed. Mr. Massicotte has collected no less than forty-two names of physicians and surgeons practising in this district between 1642 and 1700, and thirty-five during the succeeding sixty years, making seventy-seven in these 118 years, which is a goodly percentage. Among these, Silvain (altered from Sullivan) was Irish, Spagniolino, Italian, and Feltz, Austrian. Ten of the seventy-seven were barbers as well as surgeons, following the custom of the time, which was that of seventeenth century France, and these frequently entered into contracts to bleed as well as shave their patients, in return for a fixed sum per annum. The others were simply "surgeons" or salaried *médecins du roi*. Only one of these early French practitioners of the French regime, Mr. Massicotte tells us, was a "black sheep." This was an unfortunate man named Jean Lacoste, who, in 1744 was condemned to death, under the severe law of the time, for forging a five-livres note (amounting to about five shillings)! This sentence was commuted, on appeal to the Superior Council, to an appalling punish-

locus cit.

ment; he was conducted through the town of Ville-Marie stripped naked, lashed at four different street corners, and branded on the face, and was then immediately sent to Quebec to be despatched by the first ship sailing for France, to work as a galley-slave on the King's ships for life.

The following further information abstracted from these articles is of interest:

"The first surgeon whose name comes down to us in this district is *Louis Goudreau*, who was here in 1648.... *Jean Poupée*, in the same year assisted at the birth of the first children born here of European parentage..... *Etienne Bouchard*, the most prominent of his contemporaries, arrived in 1653, under an engagement to remain five years in charge of the medical needs of the colony; he stayed a quarter of a century. In 1658 he made a contract with the chief inhabitants of Ville Marie for 100 sous per annum, in return for which he would '*panser et médicamenter chaque contractant et sa famille*', 'for all sorts of diseases, both natural and accidental, except plague, smallpox, leprosy, *mal caduc*, (epilepsy) or for removal of stone.' Nicholas Colson engaged himself to Bouchard on November 15th, 1660, as assistant at 150 livres a year, plus food and lodging; and is later found in the employ of *Jean Madry*, a surgeon of Quebec, who was given by His Majesty's Chief Barber and Surgeon a Commission dated April 2, 1658, authorizing him to himself exercise the office of barber-surgeon in New France, and also 'to establish for the public good, the business and art of barber-surgeon in all places, towns, bourgs and bourgads that are under the obedience of the King.'.....*Réne Sauvageau*, surgeon of the company of M. Dugué de Boisbriant, entered into partnership with *Jean Rouxcel de Rousselières*, and both accompanied LaSalle on his exploratory expedition to the Great Lakes. In 1668 Sauvageau leased from one Brunet a house for twenty-five livres, with the agreement that both partners should 'serve with their art of surgery the lessor and his family for all sorts of diseases and accidents, and supply them with medicines, and also to shave the said lessor.' .....*Jean Martinet* conducted a system of apprenticeship: in 1674 he engaged his brother-in-law, *Paul Prudhomme*, a surgeon, to work under him; in 1681 *Francois Lady* (for three years); and in 1691, Raphael Lecourt (for five years). He and *Antoine Forestier* were the accredited physicians of the Hotel Dieu by an Act dated 13th July 1681, by which they undertook 'to serve the said Hospital—to visit it daily in alternate quarters of three months each, at 7:00 a.m., and through the day, also, if necessary—the one to relieve the other at request—they to receive seventy-five livres—the remedies to be supplied by the hospital.'..... *Michel de Sirsé de Saint Michel* bought of Jean Planchard, forty arpents of ground for 1,125 livres, and further undertook 'for three years to perform the services of surgery, for shaving and bleeding only of the said buyer, his wife and children, at their house at Pointe-aux-Trembles.' In another place the same surgeon is designated '*Chirurgien et valet de chambre de Mgr. le Gouverneur Perrot.*' "

Many of these early surgeons shared in the heroic defense of the colony against the Iroquois, and several forfeited their lives. Such were *Louis Chartier* (1653-1660), *Antoine Chandillon* and *Jean Jallot*, who died in securing the safety of the lower end of the island in 1690.

Several ancient documents of a purely medical nature are transcribed in full with their quaint orthography intact. Of three "Physicians' Accounts"[4] so published, the most interesting is perhaps that rendered by the Sieur Puibarau de Maisonneuve, *à Mr. Chartier et à Mademoiselle son Népouse et à lrs. Domestiques*, for the years 1734-35. It contains some forty items and totals 159 livres, 15 sous. "Bleeding" recurs nine times on the list, and was done for the nominal charge of 15 sous per time; giving an enema (lavement), cost one livre (about 20 cents); an ounce of "*eau divinne*" 2 livres.

Another very interesting document quoted in full is the will[5] of *Dr. Michel Sarrazin*, Surgeon-Major of Quebec, which was drawn up in Montreal on August 3rd, 1692, at the Hotel Dieu on St. Paul Street. Among other legacies, he bequeathed "all my surgical books" to the "Sieurs La Source, St. Armands, and La Sonde," three physicians of the hospital staff, who had no doubt attended him. This Dr. Sarrazin was the most famous of the medical men of New France, and was distinguished both as a great physician and a skillful surgeon, and also as an anatomist, naturalist and botanist. From his record and that of some others like him, we learn that the new spirit of scientific research was at work here, as well as in the Old World, in the then untilled fields of human anatomy and animal and plant life. Charlevoix wrote of this celebrated savant,—"*M. Sarrazin, correspondant de l'Académie, Médecin du Roy dans ce pays, habile dans la médecine, dans l'anatomie, la chirurgie et la botanique; qui a l'esprit orné, et qui ne se distingue pas moins dans le Conseil Supérieur dont il est membre que par son habileté dans tout ce qui est de sa profession.*" His biography has been made the subject of an exhaustive study by Mgr. Laflamme,[6] which was presented before the Royal Society of Canada in 1887. The main facts are summarized by Mr. Massicotte, (*l.c.*). Born in 1659 at Nuits, in Bourgogne, he studied medicine in Paris, and came to Canada in 1685. Returning to France in 1694 he took a medical degree at the University of Rheims,† and, in 1697, came back to Quebec, at the urgent request of the inhabitants, with the title *medecin du roi*, at a salary of 600 livres. In 1699 he was created Physician-in-Chief of all Canada, and was elected also a corresponding member of the newly established *Académie des Sciences* of Paris, with the special duty of making a study of the plants and animals indigenous to Canada. His subsequent communications to the Academy upon the beaver, muskrat, wolverine, porcupine, etc., are published at length in its Memoirs and won for him a pension of five hundred and

†or Rens.

fifty livres. As a botanist he is known as the discoverer of the pitcher-plant, which was called after him, *Saracennia purpurea*, as the *Gaultheria procumbens* (wintergreen), was named after Dr. Gaulthier, another distinguished Quebec physician and botanist of the period, who was also, with Sarrazin, a Corresponding Member of the French Academy.* Dr. Sarrazin died in 1735, of a malignant ship-fever caught in the wards of the Hotel Dieu, of Quebec, of which he was attending physician. One of his daughters, Charlotte, married Joseph-E.-T.-Gaulthier, Seigneur de Varennes.

M. Massicotte closes his articles with the hope that these notes may some day be of use to the future historian of medicine in New France. We understand that he is now at work on a more comprehensive monograph which will present a complete statement of all the information he has collected on this subject to date. It will appear in the next Annual Report of these Archives.

*See Dr. Birkett's Article.

Such a contribution, emanating as it does, from one who is not himself a member of the medical profession, is a labour of love which commands the grateful recognition of us all.

1. *Les Chirurgiens de Montréal du XVIIe Siècle*, Par E. Z. Massicotte, *Bull. des Rech. Hist.*, 1914, XX, 252-258; Also *L'Union Médicale*, 1917, XLVI, 310-315. Additional Notes, *Bull. des Réch. Hist.*, 1921, XXVII, 41-47. *Les Médecins, Chirurgiens et Apothecaires de Montréal de 1701 a 1760. Idem. Bull. des Rech. Hist.*, 1921, XXVII, 75-80. Additional Notes on same *Ibid* pp. 325-327. *Chirurgiens, Médecins, etc. sous le Regime Francais à Montréal (Nouvelles Notes) Idem. Bull des Rech. Hist.*, 1922, XXVIII, pp. 247-251.

2. See "History of Medicine in the United States," by Francis Packard, Lippincott, Philadelphia, 1901; also "A Narrative of Medicine in America," by James Gregory Mumford, M.D., Lippincott, Philadelphia, 1903.

3. Presidential Address delivered before the 30th Annual Congress of the American Laryngological Association, held in Montreal, Canada, May, 1908. *Medical Record*, July 25th, 1908.

4. *Comptes des Chirurgiens Montrealais du XVIIIe, Siecle.* E. Z. Massicotte, *Union Méd.*, 1919, XLVIII, 507. Also, *Bull. d. Réch. Hist.*, October, 1919.

5. *Un Testament du docteur Sarrazin. Idem. Bull. d. Réch. Hist.*, January, 1919.

6. *Michel Sarrazin: Materiaux pour servir à la service de l'Historique de la Science en Canada., par l'Abbé Laflamme. Proc. Royal Soc. of Canada*, 1888, V, Sect. 4, pp. 1-23.

Correlation of Efficiency Tests.—Jesse Feiring Williams, New York, reports tests made on 108 students of the University of Nevada. There was, in this group, virtually no correlation between the Sargent physical test and the Schneider cardiac test for women of the age range 17 to 23 years. The rather high correlation of 0.57 previously reported Williams believes was doubtless a change result and was due to the wide age range of the group tested, or to a possible difference between men and women. The Sargent and Schneider tests do not measure the same thing. Vigor, stamina, "pep" that Dr. Sargent refers to are not the same qualities as are measured in Schneider's test. Whether Sargent's test is a good measure of physical vigor has not been determined; likewise, the reliability of Schneider's test is not indicated by this study.—*Jour. Am. Med. Ass.*, Jan. 6, 1923.

New Regulations on Marketing of Medicinal Whisky.—Bottled-in-bond whisky will from now on gradually replace bulk whisky for medicinal use, under a decision recently issued by the Commissioner of Internal Revenue. This decision is the outcome of the resolution aodpted by the House of Delegates in St. Louis, last May, recommending that provision be made for the marketing of whisky in bottled-in-bond containers, so that physicians who prescribe whisky may have some assurance that their patients will receive the genuine article. Throughout the conferences that have been carried on, the officers of the Association have met with cordial cooperation on the part of the government officials. All agreed that, so far as it is necessary to use whisky for medicinal purposes, the supply should be of known purity. In the absence of any legal standard of purity except that provided by the Bottled-in-Bond Act, it was generally conceded that any provision whereby bottled-in-bond whisky would be made available for medicinal uses to the patient in original sealed containers would go a long way toward solving the problem. One difficulty has been to find some way in which this could be done; that difficulty has been largely overcome in the decision just issued.—*Jour. A. M. A.*, Jan. 6, 1923.

XUM

Correspondence

DILUTE IODINE LOTION IN ACNE

To the Editor:

Remembering the high dilution in which iodine has been found efficient as an antiseptic, it occurred to me that a dilute solution which would not stain the skin, and which could be applied daily without irritation, might be serviceable in the various pustular eruptions such as acne, eczema oris, etc., which are so disfiguring to the faces of those that suffer from them. The results in the limited number of cases in which I have had an opportunity of trying the treatment have been so gratifying that I feel justified in reporting the matter..

I use *Tr. Iodi Mitis* B.P. one drachm to 8 ounces of water as a lotion at night, or in some cases night and morning. Fresh solution should be made up every week, as the iodine volatilizes fairly rapidly. The treatment must be continued indefinitely, but patients are so rewarded by the marked improvement in their appearance, that they are glad to continue.

Within a few days after commencing the treatment, formation of pustules is retarded, the induration and redness surrounding the more disfiguring lesions begins to lessen, and many of the smaller lesions disappear altogether. Few fresh ones appear, and those which do are less extensive and more transient than formerly. The inflammatory reaction surrounding a few of the more acute lesions may be slightly aggravated by the first few applications, in which case the patient is advised to avoid these areas for a few days until the acute process subsides.

One patient, a case of eczema oris, had been treated at various times with the following; eucalyptol ointment, Fordyce's paste, sulphur ointment, autogenous vaccine of staphlococcus albus, 95% alcohol as a lotion, ether as a lotion, and ammoniated mercury, (grs. x to the ounce benzoated lard). All these methods except two either failed completely or aggravated the condition. Ammoniated mercury ointment proved of benefit in controlling the eruption to some extent, but its effect was neither as great nor as constant as the iodine solution. Neither was it as convenient or pleasant an application. Ethyl alcohol 95% was of as much, if not more, benefit than the mercury. This patient is still using the iodine lotion and seldom does a papule appear, and those which do are faint and inconspicuous. Neglect of treatment, however, when away from home, and use of old solution under strength have on some occasions resulted in recurrences of greater or less severity.

One patient, an extreme case of acne, was so much improved after a week's treatment, that one of his associates remarked to me, "He used to have acne very bad."

Beachville, Ont. E. N. Ballantyne, M.D.

SERUM TREATMENT OF GLANDERS

To the Editor: During the early part of 1922 there was a serious outbreak of glanders among the horses at Treesbank, Manitoba, and a young farmer who had several of his animals affected, contracted the disease. He was brought to Winnipeg, and Dr. A. Gibson had him under his care for several months at the Galloway-Gibson clinic, where he was vigourously treated without any very appreciable effect. In the early part of December, while discussing the case with Dr. Torrance, Dr. Watson, Dr. Heath and Dr. Gallivan, at the Biological Laboratory, Health of Animals Branch, at Ottawa, they told me they had a horse that they were endeavouring to immunize by the repeated injection of mallein and that if we had the courage to try its serum on a human being they were willing to supply it practically *ad lib.* I brought home a considerable quantity and Dr. Gibson readily assented to its being tried out. To be brief, the results were simply amazing. This young man had a suppurating sinus running from below the knee to the ankle, and six shorter ones radiating from this region and riddling the foot and lower part of the leg, besides a large ulcer, one and a half inches in diameter about the internal malleolus. Indeed, so grave was his condition that amputation above the knee was seriously considered.

After four or five injections of the serum the

sores had ceased to suppurate and in less than three weeks were completely healed and the man is now about his work as usual.

In the meantime the young doctor who was attending the case had accidentally infected himself and came to Winnipeg with an angry sore one inch in length and three-quarters of an inch in width on the upper part of the dorsal surface of the right forefinger. The edges were undermined and on the slightest movement of the finger pus exuded everywhere from the floor. It was steadily progressing in spite of the application of iodine and other antiseptics and the *Bacillus Mallei* was found in pure condition in the discharge.

After three injections of the serum it assumed the appearance of a clean sore in which the bacillus could not be found either by culture or smear, and which went on and healed in the most kindly fashion until, in less than two weeks, the skin was again quite intact.

Dr. Gibson and Dr. Jackson will make a full report on these cases at an early date but in view of the possibility that there may be other sufferers from this infection I thought it right to ask you to publish this preliminary note.

There is perhaps no chronic infection that has such a gruesome and distressing clinical course as glanders and any new and better method of treatment will prove a boon. Any physician having the opportunity and wishing to try this serum can count, I am sure, on the eager co-operation of Dr. Torrance's Department.—GORDON BELL, M.D., C.M., *Professor of Bacteriology and Hygiene, University of Manitoba.*
Winnipeg, January 31st, 1923.

The Editor,

Canadian Medical Journal, Montreal.

Dear Sir:

Are the members of the Canadian Medical Association aware of the fact that it is the intention of the Government of Canada to charge duty on books on medicine and surgery, and on reprints of articles written by Canadian physicians and surgeons for free distribution amongst their colleagues in Canada. Article 172 of the Customs Tariff, "provides for the free entry.....of books on mechanic arts and similar industrial books, but it does not provide for the entry of books on medicine and surgery." "Non-advertising printed books on medicine or surgery..are subject to duty under tariff item 171 at the rate of ten per cent. ad valorem, general tariff, plus the sales tax, when imported by individuals, unless they are included and used as text books in the curriculum of a university, college or school in Canada."

Under past governments reprints of articles written by medical men for free distribution amongst their colleagues were admitted into this country freely and without custom duty. It is noted that this, apparently, is not to be the practice under the present regime. This is regrettable, because a customs duty imposed on educational books or reprints can act only to the detriment of the Canadian people and is very definitely opposed to the spirit of the law. Past governments have lived up to the *spirit* of the law, whereas it is feared that the present government can only be expected to uphold the *letter* of the law. The reason for this change in practice by the Department of Customs is not a question of politics, but the Canadian Government is harassed by an ever-increasing debt which forces them to bleed the Canadian people in an endeavour to make ends meet. The burden of this debt under which Canada labours is equally due to Conservative and Liberal Governments alike. While medical men will sympathize with all legitimate efforts made to provide revenue to meet our country's obligations the medical profession of Canada should unite to see that our Governments are not permitted to increase their revenues at the expense of the advancement of science and especially that science which stands for the healing of the nation. Yours faithfully,
December 21st, 1922. A. MACKENZIE FORBES

N.B. The words in italics in this letter are quotations from letters written by the Minister of Customs.

Abstracts from Current Literature

MEDICINE

The Wassermann Reaction in The Johns Hopkins Hospital. Keidel, A., and Moore, J. E., *Johns Hopkins Hosp. Bull.*, January, 1923, Vol. 34, pp. 76.

The authors report the results of their work in the Wassermann laboratory of the Syphilis Department of the Johns Hopkins Hospital since January, 1918. During this time the sera of about 45,000 patients from all services of the hospital have been examined. An account of the method of performing the test is given.

Keidel and Moore feel that the Wassermann test should be done on all patients. In order to show the advantage of this procedure in preventive medicine, they consider that it is of interest to examine the difference between the hypothetical number of cases of syphilis, which might have been detected in the various departments of the dispensary, had the Wassermann been done as a routine, and the number of cases actually discovered.

Of 4,736 public ward patients, white and coloured, in the medical house service (where routine tests were done) 14.2 per cent. had positive Wassermanns (7.6 per cent. of whites, 22.9 per cent. of negroes). The social level of these patients corresponds closely with that of dispensary patients, though in the dispensary there are relatively more negroes This difference in the racial distribution would tend to make the routine figures for dispensary patients even higher. Assuming, however, that, had the Wassermann been employed, as a routine in all departments of the dispensary, then 14.2 per cent. of the tests would have been positive. The authors give a table showing the theoretical numbers for positive reactions in the different departments for dispensary patients to compare with the actual numbers found there. They conclude from these comparisons that because the test is not done as a routine no department of the dispensary is more than thirty-five per cent. efficient in detecting syphilis. In the course of seventeen months, then, 4,246 potential syphilitics were not discovered.

The Wassermann reaction is the most reliable test for syphilis which we have at present, although it is not infallible and the authors consider that sufficient laboratory space and equipment should be provided to perform it on all in-patients and out-patients of a genera hospital. All the cases of syphilis now undetected could be treated, and thus the spread of infection could be lessened. The birth of syphilitic babies could be prevented and the disease would not carry off the very large numbers that it does at present owing to its involvement of the cardiovascular and nervous systems.

ARCHIBALD MALLOCH

On Relapsing Pyrexia in Lymphadenoma, With an Account of a Case. Hall, A. J., and Douglas, J. S. C., *Quart. Jour. of Med.*, October, 1922, Vol. 16.

Pel, in 1885, and Ebstein, in 1887, described cases of lymphadenoma showing a peculiar type of relapsing or periodic pyrexia. A. S. MacNalty collected thirty-two such cases in 1911 and to-day records of perhaps fifty could be found, but very few of these would compare in duration of the relapsing fever with that of Ebstein's cases. So distinct may be this type of temperature, which may last for months, that a diagnosis may be made from it alone.

The authors compare many known cases by charting out the temperature curves in an identical way. They conclude that the relapsing type of fever differs in certain respects from that seen in any other disease. It resembles that seen in malaria, relapsing fever, rat-bite fever and some others in (1) regular periodicity, (2) gradual ascent by steppage and sometimes similar gradual descent, and (3) very low temperatures with apparently complete recovery in the apyrexial periods. In cases of lymphadenoma or Hodgkin's disease, the span (the interval of time between the date of the middle of a wave of pyrexia and that of the middle of the next wave) is usually from fifteen to twenty-five days, but may extend to thirty-six days. In the other diseases the span is not so long. In lymphadenoma it is usually constant for each individual case.

It cannot yet be said that we know why such a type of temperature is seen in some and not in other cases of lymphadenoma, nor that we know the cause of the disease. ARCHIBALD MALLOCH

PAEDIATRICS

The Influence of Atropin on the Infant's Stomach. Salomon, Adolf. *Monat. Schrift für Kinderheil Kunde*, October, 1922.

In order first to determine the effect of atropin on the normal stomach, Salomon selected six healthy infants from three weeks to eight months of age. By means of the stomach tube and the x-ray he found that the stomach is quite empty five hours after feeding, while one hour after feeding he was able to withdraw from twenty to 100 c.c. fluid from the stomach. On the following day each infant received one or two drops of a 1-1000 atropin solution in his first bottle. Five hours later Salomon was able to withdraw from 5 to 15 c.c. stomach contents. In only one case was he unable to get anything. The infants were later given two to three drops of the atropin solution one-quarter hour before their next feeding; one hour after the feeding a larger quantity of chyme was obtainable than on a previous day when no atropin had been given. The routine of the first day was then repeated in order to control the results. Atropin was in this way found to delay the emptying time of the stomach, as shown by the fact that more fluid could be withdrawn one hour after feeding and that there was always some residue in the stomach five hours after feeding when under normal conditions the stomach should have been empty. At the same time there was no diminution in the secretion of hydrochloric acid, the hydrogen ion concentration being unchanged in spite of the greater residue.

The explanation is simple: Atropin causes a relaxation of the muscle tone of the stomach. Peristalic waves, as shown on the fluoroscope, become slower and weaker and there is no apparent relaxation of the pyloric sphincter. Atropin appears to have no effect on the pylorus. The good effect of atropin in pylorospasm must, therefore, be due to a reduction in the gastric hypertonia which must be present in a number of these cases. Indeed, continued vomiting in a case of hypertrophic pyloric stenosis which had been operated upon, was only relieved by the administration of atropin.

Habitual vomiting is a neuropathic condition which may simulate pylorospasm, but lacks the diagnostic signs. Atropin in sufficiently large doses will relieve this condition, but often surprisingly large doses are required; not only is the vomiting relieved but the infants become less restless and more happy as a result of treatment.

Conclusions. Atropin causes a relaxation of the normal tone of a healthy infant's stomach. It has no effect on the pylorus. Even after several large doses, atropin causes no diminution in the secretion of hydrochloric acid. The favourable results obtained in pylorospasm are due merely to the action on the stomach muscle, and not on the pylorus. For the same reason, atropin is very often beneficial in controlling habitual vomiting.

L. M. LINDSAY

A Selective Medium for the Diphtheria Baccillus. Greenspon, E. A. *Johns Hopkins Hospital Bulletin*, January, 1923, vol. 34, p. 30.

The author undertook to try and find a medium better even than Loeffler's blood serum, which, if possible, would be more selective. In doing this he attempted to discover some substance which would accelerate the growth of the bacillus and at the same time would inhibit the development of other organisms generally found in throat swabs.

The steps by which he finally reached the formula of the new medium are given. The final outcome of his work is as follows, "To 75 c.c. of clear pig, sheep, or human serum, is added 1 c.c. of a fifty per cent. sodium citrate solution and sufficient dextrose-veal-infusion-broth to bring the volume to 100 c.c. With a three per cent. citrate acid solution the reaction is then adjusted to p.h. 6.4 by the cololimetric method, as described in recent editions of books on bacteriological technique. Di-brom-thymol-blue is an indicator which covers the range required, gives fairly good colours, and is not subject to the qualitative error of brom-cresol-purple. If the medium is made more acid than ph. 6.4, it does not coagulate firmly and the surface may break when it is streaked with a platinum loop or throat swab."

Greenspon's controls show that the citric acid acts in two ways. It inhibits the growth of many of the common organisms found in the throat for they cannot thrive at p.h. of 6.4. Also it quickens the growth of the diphtheria bacillus and apparently serves as a source of carbon required in that growth.

ARCHIBALD MALLOCH

Results of Removal of Tumours of the Spinal Cord. Adson and Ott. *Arch. Neurol. and Psych.* Vol. 8, No. 5, November, 1922.

The authors report a series of 112 laminectomies for spinal cord tumour, from the Mayo Clinic.

Diagnosis. The history of pain when lying down, exaggerated by coughing, sneezing or jarring, while relieved by walking about; or pain along the course of the sciatic nerve, persisting, unrelieved for years is very suggestive of intradural tumour. Spinal puncture, when it reveals a xanthochromatic fluid, is of confirmatory significance as is also the occurrence of dry tap in the fourth lumbar interspace. The rate of progress depends upon the type of tumour, the signs of pressure on the cord being registered earlier in the presence of hard, encapsulated tumours. Special disturbances of sensation depend upon the position of the tumour in relation to the cord.

Type of tumour. These may be bony, cartilagenous or fascial when they originate from the vertebrae or tissues of the spinal canal; endotheliomatous or fibromatous when they arise from the meninges and gliomatous when they take origin from the cord itself. Two of the cases revealed tuberculoma and two gumma of the cord.

Location. Fifty-nine occurred in the dorsal cord, eighteen in the cervical, and nine in the lumbar cord. In twenty-seven cases, no tumour was found.

Results of operation. In the series of 112 laminectomies, tumour was found in eighty-five cases. Of these sixteen were not removed. Seventy-nine patients are living; twenty-two are perfectly well and at work; seven are improved and doing a little work; twenty-one are improved but not at work and fourteen are helpless; thirty-four died either in the hospital or after discharge, with an average time of two years following the operation. Tumour of the spinal cord is more common than is realized; many are overlooked or found too late. The best results are obtained by early operation. F. H. MacKay

Shall We Decompress for Choked Disk? Sachs, B. *Arch. Neurol. and Psych.*, Vol. 8, No. 5, November, 1922.

After an experience of twenty-nine years, during which time, decompression for the relief of choked disk, was performed, the author asks, "Is the operation ever worth while?" A revision of 140 cases shows ninety-five to have been localized at examination while forty-five were completely unlocalizable. The occurrence of choked disk in relation to the site of the tumour is given:

Cerebellar tumours—out of nineteen cases, seventeen showed choked disk; hypophyseal tumours—three out of fifteen, presented the condition; frontal lobe tumours—nine out of thirteen gave positive finding; tempero-sphenoidal tumours—nine out of ten, presented swelling of the disk; angle tumours—four out of eight cases were accompanied by choked disk.

In thirty-eight cases of this series, decompression was performed, solely for the relief of the papillo-edema and of these thirty-eight cases, of which the subsequent history is known, twenty-nine showed no recession in the swelling. Five of these were later complicated with optic atrophy. Four of the cases showed distinct improvement, but, as the author later points out, improvement is not unknown in the absence of operation.

His conclusion is, that decompressing operations, pure and simple, whether of the subtemporal or sub-occipital variety, promise little for the relief of the choked disk. Instead of performing this operation, every effort should be made to attack the tumour itself, with a view to removal and before the patient is worn out and discouraged by unproductive operative measures. F. H. MacKay

Latent Neurosyphilis in Eight Per Cent. of Medical Patients Ignored Owing to Neglect of Lumbar Puncture. Gray, H. *Am. J. M. Sc.*, 165-384 (March) 1922.

The necessity of lumbar puncture in every syphilitic patient with repetition every year, if found positive, until a negative finding is obtained, is stressed in this article. Examination of sixty-two medical cases, all of which were considered non-syphilitic, revealed the presence of syphilis in eight cases, and in five of these, there was involvement of the central nervous system. Lumbar puncture should be done on every syphilitic patient and repeated annually until the fluids are found to be negative to all reactions. F. H. MacKay

SURGERY

Ankylosing Operations in the Treatment of Pott's Disease in the Adult. Estor. *Presse Médicale*, October 14, 1922.

This question, one of three taken up at the Fourth Congress of the French Orthopaedic Society (Paris, October 5, 1922), was discussed by Prof. Estor, of Montpelier.

His conclusions were (1) that it was not indicated in children, but was logically employed in

the adult, without, however, replacing a prolonged immobilization, usually three years; (2) the operation has given good results and should meet with greater favour in France; (3) the graft undoubtedly lasts strongly for some time; (4) the Albee method is one most generally adopted; (5) a bone graft influences favourably abscess formation, nervous complications, and pain, but he does not think it can have an influence in reducing the deformity.

Dr. Putti, of Bologna, did not evidence any enthusiasm over ankylosing operations, though recently returned from America. He preferred the Hibbs to the Albee operation.

Dr. Delchef, of Brussels, wished to know why children should not also be operated on, and emphasized the necessity of operating early.

Dr. Etienne Sorrel, of Paris, advised that ankylosing operations should be reserved for adolescents or adults in a late period of the disease. He recommended Albee's instruments as the best.

Dr. Lance, of Paris, spoke favourably of the Hibbs' operation, especially since he had used it in cases of paralytic scoliosis.

Dr. Mauclaire, of Paris, held that ankylosing operations should be used only in cases of advanced bone destruction. In dorso-lumbar and lumbar cases it was unnecessary and in cervico-dorsal or high dorsal cases it seemed to lead to meningitis and was, therefore, contra-indicated.

Dr. Patel, of Lyons, reported a successful cure in a woman of thirty-five, brought about by an ankylosing operation.

Dr. Charles Martin du Pan, of Geneva, spoke favourably of heliotherapy and quoted successful cases in children who had had grafts.

J. A. NUTTER

Involvement of the Lymph Nodes in Carcinoma of Rectum McVay, J. R. *Annals of Surg.*, December,1922, p. 755.

Cancer of the rectum constitutes about 80% of all carcinomata of the intestinal tract. It occurs usually in the sixth decade and is more common in males than in females.

The duration of symptoms is usually under one year, with an average of eight months.

The selection of site is 63% in the rectosigmoid, 36% in the ampulla and 7% in the anal canal.

The usual type of growth is adeno-carcinoma, which develops from the crypts or glands of Lieberkuhn. They invade the muscular coat of the bowel and by means of the intermuscular lymphatic network progress in an encircling direction following the course of these vessels.

Invasion of the lymph nodes may occur at any time after the growth has infiltrated the submucosa. Lymphatic invasion is late, more cases being inoperable because of local extension than of gland metastasis. Liver metastasis is more common than gland metastasis.

The paper is based upon the study of one hundred specimens removed at the Mayo Clinic. The glands were carefully dissected and preserved and note made of their locat on in relation to the bowel and to the growth. Fifty-three per cent. of the specimens did not show gland involvement; thirty per cent. slight involvement and seventeen per cent. marked involvement.

In analyzing these three groups it was noted that neither sex nor age had any significance. In group three, however, the average duration of symptoms was considerably less than in the other groups and the growth decidedly smaller, seeming to indicate that the more malignant growths produced more definite and distressing symptoms and forced the patient to seek early relief.

In group 1,—(no glandular involvement) the growths were above the average in size, were protuberant into the lumen of the bowel and in cross sections showed little, if any, tendency to invade the muscle wall.

In group 2,—The growths were not so protuberant but showed a tendency to invade the muscle wall and the fatty tissue around the bowel, thus to spread by direct extension. The glands invaded are those nearest the site of greatest direct extension. Gland involvement is slow and the type of cell in the metastasis thus shows advanced cell differentiation.

In group 3,—The growths are small and ulcerating. They spread into the muscle coats early but show little tendency to invade the surrounding fat. Glandular metastasis occurs early before there is time for direct extension into surrounding tissue.

Early glandular involvement can only be ascertained by careful sectioning of the whole gland.

Systematic examination of the glands affords a fairly accurate idea of the prognosis in a given case.

A. T. BAZIN.

The Trans-olecranon Approach in Traumatic Lesions of the Elbow. Vulliet, H. *Presse Médicale*, December 9, 1922, p. 1,065.

The paper concerns itself with fractures of the elbow in childhood, irreducible without operative interference. The writer's indications for this operation are: (1) fracture of the external condyle with the fragment displaced backward and turned roundabout benefits by immediate operation. In most cases a small external incision suffices, but where this is insufficient, the joint should be opened by cutting through the olecranon. Without good replacement this fracture is apt to leave much deformity. (2) In transcondylar fractures near the epiphysis it is generally possible to maintain good reduction without operation. In exceptional cases, however, with severe displacement laterally and posteriorly, an operation is necessary, and here the trans-olecranon approach is ideal, which exposes the whole joint. The operation itself is briefly described. A removable nail is used to fix the fragment. The olecranon is replaced by fine metallic suture. No drainage is used. Mobilization begins gently about the tenth day and removal of the nail about the fourteenth day. Two illustrative cases are cited. J. A. NUTTER

Non-Tuberculous Arthritis of the Hip. Broca, A. *Presse Médicale*, November 1, 1922, p. 941.

The writer points out that all hip arthritides centre on the possibility of tuberculosis, and that not only are there numerous non-tuberculous arthritides, but tuberculosis itself varies in its intensity—hence the difficulty of diagnosis. He attaches little importance to the tuberculin reaction, save when negative. (1) In speaking of caput planum (Legg-Calvé), he does not think it due to malformation of the acetabulum, nor to trauma, there being no history of this in his ten cases. (2) Speaking of mild cases of arthritis with a limp, he insists that it is impossible to differentiate these at once from tuberculosis, and points out that even tuberculosis may present intermittent periods of freedom from symptoms. He advocates, in doubtful cases, two weeks rest in bed and two weeks on the feet. If signs still persist we know that a chronic arthritis is present of which tuberculosis is the probable cause. Of the non-tuberculous cases, some may be "growing pains," others luetic, and others may turn out to be caput planum. (3) Sudden dislocation, almost always iliac, is peculiar to the hip. It is sometimes preceded by an acute arthritis, and the x-ray may show no bone lesion. It should be reduced at once. This may be due to tuberculosis, typhoid, influenza, or to an osteomyelitis. Another lesion due to osteomyelitis is separation at the epiphyseal line, the head remaining in place, the neck dislocated upward. (4) In acute arthritis the difficulty is to decide whether pus is present. The general signs and the use of an exploring needle help to differentiate this from an acute rheumatism. Acute suppurative arthritis, the result of osteomyelitis, should be treated by resection of the femoral head for drainage, whether the head be infected or not. It is frequently seen in nursing infants and is generally very severe when caused by staphylococcus or streptococcus, but benign when caused by the pneumococcus, which type of infection is happily more frequent. Free drainage is necessary. (5) In speaking of chronic hip arthritis suspected of tuberculosis but without definite proof, Dr. Broca says we know little of syphilis of the hip. He notes, however, that bilaterability, a sign of syphilis in the knee, is here often a sign of tuberculosis in hip conditions. In discussing caput planum, he evidently holds that some cases, at least, are tuberculous in origin. He notes three cases of caput planum following chickenpox, with complete restoration of the structure and function of the hip. (6) In closing, he speaks at length of the difficulty of differentiating between tuberculosis and osteomyelitis, quoting a case in point, where the latter disease finally made its presence certain by the discovery of a typical focus, with sequestrum, in the humerus. He speaks of rapidly spreading tuberculosis which simulates osteomyelitis, and of a differential diagnosis between tuberculosis and non-suppurative osteomyelitis, with x-rays giving no assistance, made by the aspiration of a few drops of sterile fluid. He has made his diagnosis in general by watching the case for years, when the presence of a cold abscess or of a sequestrum has cleared up the diagnosis.

J. A. NUTTER

Chronic Non-Tuberculous Arthritides of the Hip in Childhood. Sorrel, Etienne. *Presse Médicale*, October 14, 1922.

Dr. Sorrel described (1) haemophilic arthritis; (2) traumatic arthritis following fractures, coxa vara, coxa valga, and congenital dislocation; (3) arthritis accompanying infectious diseases, as

pneumonia, scarlet fever, smallpox, measles, typhoid, syphilis, gonorrhoea, osteomyelitis; (4) dry arthritis deformans, more frequent in adolescence than has been thought; (5) osteochondritis deformans (Legg-Calvé).

On this last subject Dr. Sorrel spoke at length. It had been suspected by Kirmisson and others before it was discovered and given a name by Legg, of Boston, and later by Calvé (Berck) and Waldenström, the latter considering it tuberculosis of the neck of the femur. It is generally seen in boys of five to nine years and is rarely bilateral. Its pathologic anatomy is little known and almost wholly through x-rays. The epiphyseal disc is flattened and may be fragmented; the femoral neck is often thick; coxa vara as a rule is not present. The onset is insidious, with pain and limp on walking. Its course is benign, leading neither to ankylosis nor to arthritis deformans. As to cause, Legg's traumatic hypothesis is not proved. Is it congenital? (Murk Jansen) Sorrel thinks it is inflammatory in origin, but cannot indicate the source. The endocrine glands have been thought the cause, as with inflammation of the scaphoid bone of the foot, and hereditary syphilis has also been considered.

Dr. Nové-Josserand (Lyons) discussed the relationship of osteochondritis with arthritis deformans juvenilis and with coxa vara. He thinks them all forms of the same disease, with different anatomic aspects.

Dr. Froelich, of Nancy, described (1) dry progressive arthritis with congenital hip dislocation; (2) arthritis with progressive deepening of the acetabulum; (3) osteochondritis (Legg-Calvé), which latter is a form of epiphysitis, together with essential coxa valga.

Dr. August Broca (Paris) deplored the vague term coxalgia as leading to confusion. He thought that some cases of osteochondritis (Legg-Calvé) were of a tuberculous nature.

Drs. Albert Mouchet and Carle Roederer make no distinction between osteochondritis and osteoarthritis in childhood, thinking them probably identical.

Dr. Andre Bendu (Lyons) reported cases of osteochondritis following trauma and one case following rickety deformities.

Dr. Vignard (Lyons) told of arthrotomies in two cases of osteochondritis. From one he removed two small fragments of bone of ivory hardness resembling sequestra. In the other case nothing particular was found. Dr. Vignard considered these cases showed plainly that osteochondritis was neither due to an incomplete hip dislocation nor to a congenital deformity of the acetabulum.

Dr. Judet (Paris) divides non-tuberculous hip arthritides into (1) traumatic; (2) congenital abnormalities; (3) essential coxa vara; (4) those due to infections; (5) those of unknown origin, possibly due to hereditary syphilis or an attenuated tuberculosis.

Dr. Lance maintained that osteochondritis could lead to permanent deformity, as opposed to Dr. Sorrel's opinion that it never did so. He was also impressed by the rôle of congenital syphilis as a causative agent.

Dr. Kirmisson spoke of the relationship of coxa vara with adiposity and thyroid insufficiency.

Dr. Froelich, of Nancy, thought the epiphysitides of the period of growth were due rarely to trauma, but generally to systemic infection, with or without the influence of the endocrine glands.

J. A. NUTTER

Pathogenesis and Treatment of Deformities of the Great Toe. Mouchet, Albert. *Presse Médicale*, October 14, 1922.

1. Hallux valgus is seen especially in the adult, and a little more often in women. It is generally bilateral and often seen with flat feet. It is congenital more often that it is supposed to be. Young explained this by the intermetatarsal bone, a supernumerary bone between the internal cuneiform and the first and second metatarsals. This is probably exceptional. The mechanical action of improper footwear is undeniable, but Kirmisson holds that the first place in the list of causes should be given to arthritis of various kinds. Well fitting shoes should cure most cases of hallux valgus. They should be long enough and broad enough. In young subjects forcible correction followed by immobilization will cure. If a proper shoe fails to relieve, one must operate. In elderly persons palliative measures are best. Tendon operations will not cure and amputation of the great toe is not recommended, except possibly in elderly persons.

Schede extirpates the painful bursa and resects the exostosis, a plan which is of service only in mild cases.

Reverdin's operation consists in carrying out Schede's procedure and then removing a wedge of bone from the metatarsal head, the base to the inner side, allowing correction. This operation is popular. The resection of the metatarsal head (Hueter) is an excellent and popular operation.

XUM

Edmond Rose and Lovett resect the metatarsophalangeal articulation and extirpate the sesamoids.

Mauclaire (Paris) does oblique resections of the head of the metatarsal and of the base of the phalanx. Postoperative care is of the highest importance.

2. Hallux varus is either acquired, which is rare, or congenital, which is seen more frequently, as a supernumerary toe. The treatment is surgical, and may be amputation.

Mr. André Trèves (Paris) described an operation where the cartilage on the metatarsal head was kept and placed against the raw bone left by resection. He transplanted the long extensor to the inner side, after lengthening it if necessary.

Dr. Tixier, of Lyons, Dr. Paul Hallopeau, of Paris, Dr. Lance, of Paris, and Dr. Rocher, of Bordeaux, all favoured simple resection of the head of the first metatarsal. J. A. NUTTER

ANAESTHETICS

A Lecture on the Medico Legal Position of the Anaesthetist. Mortimer, J. D. *Lancet*, December 2, 1922.

Formerly when operations were comparatively few and simple, the surgeon took all the responsibility for the anaesthetic as well as for the operation. Such a condition may still obtain in an emergency, but for the most part the anaesthetist's responsibility has increased as the surgeon's authority over him has lessened.

Differences of opinion between surgeon and anaesthetist may occur in connection with such questions as the course to be pursued in such emergencies as the entry of fluid into the air passages, or when either operator or anaesthetist has shown himself incompetent. The operator may offer to assume all responsibility, but it can only be thus shifted if the anaesthetist is under his control.

As a rule no person may be anaesthetized without consent, in the case of a child, that of the parent or guardian, in the case of an insane person, that of someone in authority. Administration, without consent, may be justifiable though illegal in the case of a patient not able to give consent, on account of delirium or shock, or in the case of a child when its parents cannot be communicated with.

Consent may have been given in the case of an adult, who changes his mind immediately after the starting of the anaesthetic. If there is reasonable ground for belief that the patient's power of judgment has been lost, one is justified in proceeding in spite of protests.

An anaesthetic should never be given except in the presence of a third person for at least three reasons. These are (1) To prevent allegations of administration without consent. (2) If struggling occurs the patient may be injured and sue for damages. Under such conditions if no third person were present the anaesthetist would be severely penalized. (3) In the case of a woman there may be erotic hallucinations and an accusation of assault may be made afterwards in good faith or for the purpose of blackmail.

A reasonable amount of skill and care is required of every medical practitioner who administers an anaesthetic. A higher standard would be expected of one holding a hospital appointment as anaesthetist.

It is quite possible that if one who has only average skill undertakes to give an anaesthetic in a case requiring special skill and experience, where these could be obtained, he might be penalized in the event of some ill effects ensuing. The anaesthetist may be sued for injury done to the patient such as the breaking of a tooth in forcibly opening the mouth, or he may be sued for the negligence of a student working under his supervision. In these cases the hospital would not be liable to damages, having discharged its duty to the public by exercising due care in appointing members of the staff. W. B. HOWELL

Anaesthetics in Common Operations. Buxton, Dudley W. *The Practitioner*, January, 1923, p. 121.

In most cases ether should be used, preceded by nitrous oxide, A.C. (alcohol 1 part, chloroform, 9 parts) or ethyl chloride. Ether vapour is better when warmed, being more easily inhaled, less being required and the after effects not so marked.

Pulmonary after effects are due to overdosage. A preliminary hypodermic injection of one hundredth of a grain of atropine, one hour before the administration, to all except babies and young children should be given. The benefit is shown partly by the smaller amount of after-vomiting, as there is less ether-saturated mucus for the patient to swallow. In cases which can be watched afterwards by a nurse, morphine gr. 1/6 and scopolamine gr. 1/100 should be given with the atropine. When the Trendelenburg position is used it is specially important not to ignore

cyanosis Oxygen should always be at hand. When the tongue has to be held forward a ligature should be passed through it from side to side.

In the removal of tonsils and adenoids, ethyl chloride may be used in the case of children, or nitrous oxide or ethyl chloride followed by ether, but not to such an extent as to abolish the laryngeal reflex. Atropine should be given beforehand, without morphine or scopolamine.

In Ludwig's Angina, A.C. mixture with oxygen should be used and measures should be ready for immediate intubation if breathing stops.

In connection with the setting of fractures and dislocations it is well to remember that though chloroform causes muscular relaxation more quickly than ether, the relaxation is not as complete.

In circumcisions in children, ether should be used with perhaps a few drops of A.C. mixture at first. There have been many fatalities in this operation from the anaesthetic. Complete anaesthesia is essential, but it should not be deeper than is absolutely necessary.

Spinal anaesthesia when used for hernias and abdominal operations should be associated with a general anaesthetic to avoid psychic shock. Patients have become maniacal for weeks when this has not been done.

In all septic cases chloroform should be avoided as it delays healing and is liable to produce post-operative acidosis. In these cases, under nitrous oxide there is a special tendency to dilatation of the heart.

The most usual cause of abdominal rigidity is deficient oxygen. This must be remedied by the use of oxygen, rhythmical chest compression, and the establishment of a free air way.

Morphine increases the tendency to rigidity whereas scopolamine and atropine neutralize this effect of morphine.

Where there is marked cyanosis due to a lung condition, chloroform by the dosimetric method should be given with oxygen. Great care should be taken to keep the air way free as there is a tendency to excessive secretion. Both ether and nitrous oxide are contraindicated. Moderate degrees of albuminuria do not contraindicate ether or nitrous oxide. Anaemia is associated with a special tendency to circulatory failure.

With alcoholics, the operation should not be commenced until a quarter of an hour after the usual signs of anaesthesia have appeared.

W. B. HOWELL

In a recent number of the *British Medical Journal*, Donald Paterson describes "Ulcerative Stomatitis in Children, and its Treatment." This form of stomatitis occurring in adults during the war was known as "trench mouth." The fusiform bacillus and Vincent's spirochaete are present. The signs of the disease in children are the same as in adults; swelling, redness, oedema and extreme tenderness of the gums about the teeth. There may be actual ulceration of the gums. The lining of the cheek in contact with the gums may also show infection. Pressure on the gums may, or may not, cause pus to appear at their margins. The breath is fetid and the temperature is generally raised to 101°. The lymph nodes beneath the angle of the jaw are swollen and tender. It occurs in children of the hospital class after primary dentition is well advanced.

To the gums is applied the following mixture (like that used during the war for adults): liquor arsenicalis 2 drachms, vin. ipecac. 2 drachms, glycerin 2 drachms, aq. menth. pip to 1 oz. This mixture is poisonous, so for small children, 15 drops in 2 drachms of water are applied with muslin on the end of the finger or with a swab. In children old enough to spit up after the application, a few drops of the undiluted mixture were used. It is said the arsenic is specific for the spirochaete and the vin ipecac. for the fusiform bacillus. Potassium chlorate was also given, 12 grs. in the twenty-four hours to children under 1 year, and 18 grs. to those under two years; care being taken to avoid meal-times as the drug causes indigestion. After twenty-four hours the acute symptoms often subside. The condition tends to recur. Sometimes the parents show the same stomatitis and this may well be the origin of the infection in the children.

XUM

News Items

GENERAL NEWS

PRELIMINARY REPORT EXPERIMENTS WITH ETHYLENE AS A GENERAL ANAESTHETIC*

W. Easson Brown, M.B.

Toronto

Some six months ago it occurred to me that if a non-irritating gas having anaesthetic properties in excess of those of nitrous oxide could be found, the problem of satisfactory anaesthesia would be nearer a solution. At present the difficulty is well known. In order to get complete relaxation it would be necessary to give such a high percentage that the patient would be in danger of asphyxia, consequently nitrous oxide is not an ideal anaesthetic.

Owing to the fact that ethylene is said to be one of the active constituents of a certain commercial ether, it was thought that this would be a good gas to experiment with. In Frankel's *Standard Work* the only reference is to the effect that ethylene has little anaesthetic properties. Malisoff and Egloff state that ethylene is not poisonous in concentrations of 72%. A rather exhaustive search of the literature failed to reveal any further information.

Ethylene is an unsaturated hydro carbon having the formula C_2H_4. At ordinary temperatures and pressures it is a gas having a peculiar, slightly ethereal odour. Compressed pure ethylene can be put on the market without any great difficulty. With the conditions under which it would be used as an anaesthetic, it is non-explosive. It is readily compressible and the operations bound up with its liquefaction and storing are not likely to prove expensive or difficult. It is not a highly reactive gas and is not likely to form compounds in the body. The first problem naturally presenting itself was to determine if ethylene did possess anaesthetic properties. Of this there can be no doubt. Mice, rabbits, cats and dogs have been anaesthetized by us with ethylene, the length of the anaesthesia varying from a few minutes to over an hour. Mice and rabbits were anaesthetized by being made to inhale a mixture containing 80% ethylene and 20% oxygen. In order to get blood pressure readings, the animals were in other experiments first lightly anaesthetized with ether, an intra-tracheal canula introduced, a blood pressure recording apparatus fixed to the carotid artery and a sciatic nerve exposed, tied off and cut. The animal was then allowed to recover from the effects of the ether. Consciousness was apparently present, the eye reflexes were active and there was a rise of blood pressure showing a reception of pain stimuli on stimulation of the sciatic nerve with an electric current. There were also reflex movements. In order to save ethylene a small receptacle having a distensible top was now used. This receptacle had three inlets, one for each of ethylene, oxygen and nitrous oxide and one outlet for the delivery of the gases. It was quite air tight and contained a vessel partly filled with a solution of KOH for the absorption of CO_2. By means of a scale fixed to the distensible top the volume of the gases in the receptacle could be seen or given amounts of fresh gases could be added as desired. In this way a fair approximation of the percentages being breathed by the animal could be made. Ethylene and oxygen alone were used, the nitrous oxide inlet being for future experiments. A mixture of ethylene, 80%, and oxygen, 20%, was administered through the intra tracheal canula. In from three to five minutes the corneal reflex was abolished and the rise of blood pressure on sciatic stimulation was much decreased or abolished. The respirations were, as a rule, somewhat slower but the blood pressure remained good even at the end of an hour's anaesthesia. After the induction it was possible to materially increase the oxygen percentage to from 25% to 35% without increased response to nerve stimulation. With this increase of oxygen and relative decrease in ethylene percentage the corneal reflex became quite active thus showing a great field of possibility in using ethylene as an analgesic either alone or in combination with nitrous oxide. The recovery of the animals from the anaesthetic was quite rapid. After an hour's anaesthesia the animal moved its head slightly in less than one minute after the anaesthetic was stopped. In less than three minutes it moved its head from side to side and in less than five minutes attempted to rise.

It would, in view of the above facts, seem that ethylene is a definite anaesthetic agent. It will now be our aim to go more fully into the effect of ethylene on the blood pressure and the respiration trusting that we may be able to show that we have a more satisfactory anaesthetic than has yet been found.

In conclusion, I would like to state that all of the work on this subject has been done in the laboratory of the Department of Pharmacology at the University of Toronto, and I cannot too greatly emphasize the very great assistance which Professor Henderson has been in helpful suggestions as well as putting the facilities of his laboratory at my disposal. I wish also to thank Professor M. Boswell for hints on the method of production.

References

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*Read before the Academy of Medicine, Toronto, February 20th, 1923.

FEDERAL INCOME TAX

Last year, the Ontario Medical Association procured from the Federal Income Tax Department, and published a statement relative to the deductions allowable to the practitioners of medicine in the matter of Income Tax returns. From the many reports received, this information was of considerable help to the Profession throughout the Province. With a view to again rendering service to the profession, the following information is published under the official authorization of the Federal Income Tax Department.

During the month of April, Income Tax Returns for the year 1922 must be filed by every practitioner. According to the Government ruling, the onus of procuring the necessary forms rests upon the practitioner; therefore, he should not wait for them to be mailed to him. At least twenty-five per cent. of the tax must be paid when the forms are filed.

In addition to the statutory deductions from Income, ($2,000 for a married man and $300 for each child under eighteen years of age; and $1,000 for a single man) the practitioner is entitled to the following deductions:

Rent—Where office is separate from your house, full rent, if actually paid. Office in your house, proportion of rent in the ratio of the proportion of house used for your business. This can usually be estimated as one-quarter or one-third.

Heat and Light.—For separate office, full amount. For office in house, same proportion as rent, *i.e.*, one-quarter or one-third.

Office Girl.—Full amount.

House Maid.—Same proportion as office rent, *i.e.*, one-quarter or one-third.

Telephone.—Full amount.

Automobile.—(1) Maintenance—Where only one car is used, 75% of the total cost of operating is allowed as

chargeable to business. When a physician owns more than one car, and one is used solely for business purposes, the whole operating expense of that car is allowable. Note—No additional allowance is made for any part of the operating expense of the second car. (2) Depreciation—Applies as above; that is, on the basis of 75% for one car, or 100% for one of two cars, such depreciation being based on the following ratio: 1st year, 25%; 2nd year, 15%; 3rd and succeeding years, 10%.

Wherever you feel that the above does not fairly cover your case, it is suggested that you submit the matter to the local Inspector of Taxation.

Books, Instruments and Office Fixtures.—Depreciation of 10% per year of the original cost values.

House Owner with Office Therein.—In the proportion of the space used for office purposes, *i.e.*, as an average, one-quarter or one-third, you are allowed in this ratio, one-quarter or one-third of your taxes, interest on your mortgage, and insurance. In addition, you are allowed a depreciation of 2½% of the original cost value on a brick house, and 5% of the original cost value on a frame house, in the same proportion, *i.e.*, one-quarter or one-third. Proportion of interest on your house investment is not allowable.

Drugs, Office Supplies, Stationery, Stamps, etc.—Full amount.

Receipts.—If cash receipts only are shown, no bad debts are allowed; if accounts charged are shown, bad debts are allowed. It would appear that the simpler and more satisfactory return would be cash receipts. Be sure to state in the General Expense column the proportion of expenses shown, that is, one-quarter or one-third, as the case may be, so that the matter will not be referred back to you for explanation, or reduced by three-quarters or two-thirds.

Medical Society Fees.—Show Medical Society Fees as an abatement. Journal subscriptions, post graduate expenses and capital account are not yet considered deductable. These are some of the points which the Association has taken up with the Commissioner on Taxation, and upon which we will continue to press for favourable rulings.

The Sliding Scale (upwards) according to your income, is no doubt, ere this, familiar to you. It is available in printed form. If you are not perfectly certain as to the correct computing procedure, consult your local Inspector. Write the Secretary of the Association if there is any special point on which you would like us to get a ruling for you.

Dr. Sofie A. Nordhoff-Jung, of Washington, District of Columbia, U.S.A., has founded an annual prize of five hundred dollars bearing the title of "The Sofie A. Nordhoff-Jung Cancer Research Prize." This prize is destined for the encouragement of researches in the etiology, prevention and treatment of cancer, and will be awarded by a commission, composed of members of the University of Munich, Bavaria.

The international Congress of Surgery issues an advance programme for the meeting, which will occur in London, July 16-21. The sessions will be held under the presidency of Sir William Macewen. Among American surgeons who are included on the programme are the following: Drs. W. R. MacAusland, Boston, "Arthroplastics"; Harvey Cushing, Boston, "Surgery of the Endocrines"; C. Frazier, Philadelphia, "Surgery of Traumatic Nerve Lesions"; George Crile, Cleveland, "Operative Shock"; William J. Mayo, Rochester, "The Splenic Syndromes," and Major A. P. Hichens, Washington, "Serum and Vaccine Therapy." The arrangements for the congress are in the hands of the secretary, Dr. L. Mayer, who may be addressed at 7 Rue de la Loi, Brussels.

The Association pour l'exension des études pastoriennes, founded two years ago, has endeavoured to ameliorate, at least in some degree, the trying situation of university students, for whom the high cost of living makes it very difficult to continue their studies. The funds collected by this society enable young investigators to devote their time to research work in the Pasteur institutes and the biologic laboratories of France and its colonies. The scholarships that are accorded, on the recommendation of a committee of eight members presided over by Dr. Roux, director of the Pasteur Institute, amount ordinarily to 24,000 francs, and cover two years of study. Fifteen such scholarships have already been granted. The association, in order to be in a position to continue its work, has issued an appeal for funds, calling more particularly on those who, in the past, have themselves been indebted in any way to the Pasteur institutes.

Dr. Oskar Klotz, Med., 1906, who has latterly been engaged in re-organizing the pathological department of the University of Buenos Aires under the direction of the Rockefeller Foundation, has been appointed to the chair of Pathology in the University of Toronto, and will assume his new duties on July 1st, next. Dr. Klotz, who was formerly a member of the teaching staff of the Faculty of Medicine, McGill University, went to the United States in 1910, as Professor of Pathology in the University of Pittsburg and Director of the Magee Pathological Laboratory. His work in this connection and in association with the Rockefeller Foundation has been of the highest type and has won for him recognition as a leading pathologist.

We have to announce with very great regret the death, on January 23rd, of Dr. J. W. Ballantyne, of Edinburgh, after a short illness, which necessitated an operation from which he did not rally. We intend to publish a notice of his life and work in an early issue.

John D. Rockefeller recently purchased, for 40,000 francs, as a centenary gift to the people of the village, the cottage at Dôle, France, in which Louis Pasteur was born 100 years ago. The French parliament has given an additional sum of 20,000 francs with which the cottage will be remodelled into a public museum. It will be presented to the people of the commune of Dôle. The property and house formerly belonged to Pasteur's father, a tanner.

The Seventh Annual Clinical Session of the American Congress on Internal Medicine will be held in the amphitheatres, wards and laboratories of the various institutions concerned with medical teaching, at Philadelphia, Pa., beginning Monday, April 2nd, 1923. Practitioners and laboratory workers interested in the progress of scientific, clinical and research medicine are invited to take advantage of the opportunities afforded by this session. Inquiries may be addressed to the Secretary-General, Frank Smithies, M.D., 1002 N. Dearborn Str., Chicago, Ill.

At the International Congress of Ophthalmology held in Washington in April, 1922, Mr. Treacher Collins presented an invitation on behalf of all the Ophthalmological Societies of Great Britain and Ireland to hold the next Congress in London in the year 1925. The invitation was accepted on the motion of Professor Gullstrand, of Upsala, Sweden, seconded by Dr. Lucien Howe, of Buffalo, New York. A general committee consisting of representatives of the inviting Societies has since met and has formed an executive committee, empowered to make arrangements for the 1925 Congress. It is to be held in London during the four days, Tuesday 21st to Friday 24th July. The three official languages are to be English, French and German. The subscription for membership has been fixed at the sum of £2. Invitations will be sent to the principal Ophthalmological Societies or other representative bodies in every nation, asking them each to nominate a delegate to the Congress who would be responsible for promoting its interests in the country which he represents, so as to endeavour to make it a great reunion of all those interested in Ophthalmology throughout the world. The Executive Committee is composed of the following members: Mr. E. Treacher Collins, Chairman; Mr. J. Herbert Fisher, Vice-Chairman; Mr. Ernest Clarke, Treasurer; Mr. Leslie Paton, 29 Harley Street, London, W., and Mr. R. R. James, 46 Wimpole Street, London, W., Secretaries; Mr. A. B. Cridland; Mr. J. B. Lawford; Mr. Humphrey Neame; Sir John H. Parsons, F.R.S.; Mr. A. H. H. Sinclair.

XUM

WORKMEN'S COMPENSATION BOARD TARIFF FOR PROVINCES

	B.C.	Alta.	Man.	N.B.	N.S.	Ont.*
AMPUTATIONS—						
Finger or toe, one	$ 10.00	$ 15.00	$ 10.00	$ 10.00	$ 10.00	$ 10.00
Each additional finger or toe	5.00	5.00	(all) 15	5.00	5.00	5.00
Metacarpal or Metatarsal, one	....	....	....	15.00	10.00	15.00
Each additional Metacarpal or Metatarsal	....	....	....	5.00	5.00	5.00
Arm	50.00	50.00	50.00	25 to 40	30.00	40.00
Forearm	50.00	....	50.00	25 to 40	30.00	40.00
Wrist	50.00	....	50.00	25 to 40	30.00	40.00
Shoulder, disarticulation	75.00	75.00	100.00	50.00	60.00	75.00
Hip, disarticulation	100.00	100.00	100.00	75.00	80.00	75.00
Thigh	60 to 75	70.00	75.00	50.00	50.00	60.00
Leg	50.00	50.00	50.00	25 to 40	30.00	40.00
Ankle joint	50.00	50.00	50.00	25 to 40	30.00	40.00
Foot	50.00	50.00	25.00	25 to 40	30.00	40.00
Hand	50.00	....	25.00	....	....	....
Knee	....	....	50.00	....	....	....
FRACTURES—Including after treatment—						
Potts Fracture	....	45.00	....	....	50.00	....
Skull, closed fissure, no operation	10.00	10.00	....	10.00	10.00	....
Skull, open fissure, with brain symptoms and no operation	40.00	40.00	....	30.00	....	....
Skull, with operation	100.00	100.00	75 to 150.00	65.00	....	....
Fingers, one	10.00	10.00	....	5.00	10.00	5.00
Fingers, each additional	10.00	5.00	....	5.00	5.00	10.00
Hand	....	20.00	....	....	....	....
Metacarpal, one	....	....	....	5.00	10.00	5.00
" two or more	....	....	....	5.00 ea	5.00 ea	10.00
Radius	25.00	30.00	35.00	20.00	20.00	20.00
Ulna	20.00	20.00	35.00	20.00	20.00	20.00
Radius and Ulna	45.00	40.00	50.00	25.00	25.00	25.00
Humerus	40.00	50.00	....	25.00	30.00	25.00
Upper Arm	....	....	60.00	....	....	....
Wrist	....	....	25.00	....	....	....
Toe, one	10.00	10.00	15.00	5.00	10.00	10.00
Toe, each additional	....	5.00	....	5.00	5.00	....
Metatarsal, one	....	....	....	5.00	10.00	10.00
" each additional	....	....	....	5.00	5.00	....
Foot	20.00	20.00	40.00	....	....	....
Tibia	30.00	35.00	50.00	30.00	30.00	30.00
Fibula	20.00	25.00	30.00	30.00	10.00	20.00
Tibia and Fibula	50.00	50.00	75.00	40.00	40.00	40.00
Femur	70.00	70.00	100.00	30 to 50	50.00	50.00
Jaw	25.00	25.00	50.00	20.00	20.00	20.00
Malar and Nasal Bones	12.50	12.50	....	10.00	10.00	10.00
Clavicle	25.00	25.00	30.00	15.00	15.00	15.00
Scapula	20.00	20.00	25.00	15.00	....	15.00
Ribs, one or more	10.00	10.00	20.00	5.00	10.00	5.00
Breast Bone	....	....	25.00	....	....	....
Patella	60.00	20 to 70	50.00	20 to 40	30.00	20 to 40
Pelvis	50.00	50.00	60.00	10 to 40	....	10 to 40
Coccyx	....	....	15.00	....	....	....
DISLOCATIONS—including subsequent attention—						
Finger, one or more	5.00	5.00	5.00	5.00	5 to 7.50	5.00
Toes, one or more	5.00	5.00	5.00	5.00	5 to 7.50	5.00
Thumb	....	....	10.00	....	....	....
Metacarpal or Metatarsal, one or more	....	....	....	5.00	5 to 7.50	10.00
Wrist	15.00	15.00	10.00	10.00	10.00	10.00
Elbow	25.00	25.00	20.00	15.00	15.00	15.00
Shoulder	25.00	25.00	20.00	15.00	15.00	15.00
Clavicle	15.00	20.00	....	10.00	10.00	10.00
Jaw	10.00	10.00	10.00	10.00	5.00	10.00
Sacroliac	15.00	....	....	....	....	10.00
Hip	50.00	50.00	35.00	25.00	30.00	25.00
Knee	50.00	50.00	35.00	20.00	25.00	20.00
Patella	15.00	....	....	....	....	10.00

*A bonus of 20% is added to fees shown by the Workmen's Compensation Board of Ontario.

WORKMEN'S COMPENSATION BOARD TARIFF FOR PROVINCES—*Continued*

	B.C.	*Alta.*	*Man.*	*N.B.*	*N.S.*	*Ont.*
DISLOCATIONS—*Continued*						
Ankle	20.00	....	20.00	15.00	15.00	15.00
Tarsus	....	....	....	....	....	10.00
Semilunar cartilage of knee	....	10.00	....	....	10.00	....
OPERATIONS, including after treatment—						
Suturing, without anaesthetic	....	5.00	....	....	.50	....
Suturing, with local Anaesthetic	5.00	....	....	5.00	1.00	....
First treatment of wounds not requiring suturing	....	3.00	....	2.00	....	....
Incision of Abscess, without general Anaesthetic	....	....	....	....	.50	....
Incision of Abscess, with local Anaesthetic	....	3.00	....	....	....	....
Incision of Abscess, with general Anaesthetic	....	5.00	....	....	3.00	....
Removal of Eye	....	....	....	35.00	40.00	40.00
Extraction of Steel from Interior of eye ball	....	....	....	50.00	....	50.00
Iridectomy	....	....	....	50.00	....	50.00
Removal of foreign body from eye	5.00	....	....	3.00	....	....
Hernia, operation for radical cure	60.00	75.00	75.00	60.00	60.00	....
Hernia, radical cure of double hernia	....	110.00	100.00	75.00	....	....
Hydrocele, radical cure	....	....	40.00	25.00	....	....
Excision of Diseased bone	....	....	10 to 50	....	....	....
Incision into joint for drainage	....	....	10.00	....	....	....
Incision into joint for removal of cartilage or foreign body	....	....	25 to 100.00	....	....	....
Tendons, repair of	....	....	25 to 50	....	....	....
Chest, Aspiration of fluid	....	....	10.00	....	....	....
Chest, resection of ribs for drainage	....	....	40.00	....	....	....
Spine, Laminectomy	....	100.00	100.00	....	....	....
Removing Semi-lunar cartilage of knee	75.00	100.00	....	....	....	....
Dressing wounds, no anaesthetic	....	5.00	3.00	....	....	....
Dressing wounds, with general anaesthetic	....	20.00	15.00	....	....	....
Skin grafting	15 to 25	....	....	....	....	....
Laparotomy	50.00	....	....	....	....	....
Minor operations, not otherwise provided for	....	....	....	....	....	10.00
Major operations, not otherwise provided for	....	....	....	....	....	60.00
Plaster of Paris dressing	....	3 to 5	....	....	....	....
ANAESTHESIA—						
General Anaesthesia for Major operations	5 to 7.50	10.00	5.00	10.00	10.00	5.00
Anaesthesia for minor cases	....	5.00	....	6.00	5.00	....
Assistant Anaesthetist	....	....	5.00	10.00	....	5.00
X-RAY—						
Hand	5.00	6.00	....	5.00	5.00	3.50
Foot	5.00	6.00	....	5.00	5.00	5.00
Leg	5.00	6.00	....	6.00	7.50	5.00
Pelvis or Hip	10.00	8 to 10	....	8.50	10.00	7.50
Spine or head	10.00	10.00	....	8.50	10.00	10.00
Eye	15.00	20.00	....	....	15.00	....
Elbow	5.00	6.00	....	....	7.50	....
Shoulder	7.50	8.00	....	6.00	7.50	5.00
Knee	7.50	6.00	....	....	7.50	....
Clavicle	....	8.00	....	....	....	....
VISITS—						
First visit at plant, home or hospital	3.00	3.00	....	3.00	3.00	2.50
First visit at office	1.50	....	....	2.00	2.00	1.50
Subsequent visits at home	2.25	2.00	....	2.00	2.00	1.50
Subsequent visits at office	....	1.50	....	1.00	1.50	1.00
Night visits away from office	5.00	5.00	....	3.00	3.00	2.50

*A bonus of 20% is added to fees shown by the Workmen's Compensation Board of Ontario.

QUEBEC

An endowment of $25,000.00 by John Baillie, of Montreal, for the departmental library of Chemistry in McGill University, was announced recently by Dr. R. F. Ruttan, Director of the department. The endowment will be a memorial to the donor's son, Lieutenant George Irving Baillie, a former student who was killed in action during the war.

A memorial tablet in commemoration of McGill University undergraduates who fell during the war is to be placed in the lounge room of the McGill Union, and will bear the following inscription—"To the memory of our comrades in arms, those sons of old McGill who fell in the service of her country, 1914-1919." This tablet is placed by the Returned Undergraduate Association of McGill. Designs for the tablet are invited from all graduates and undergraduates of the University, and will be judged by Professor Ramsay Traquair. The author of the successful design will be entrusted with the execution of the tablet, which will be of bronze. The respective faculties of the university have their own special memorials, but this is the first memorial to the whole body of McGill men who fell.

A series of luncheon lectures on Industrial Medicine has been arranged by the Governors of McGill University in order to bring prominently before the manufacturing and industrial sections of the community the importance of making use of preventive and sanitary medicine in industry. The plan is to follow the lines of the Canadian Club and hold a series of five luncheons to be followed by short addresses by recognized experts on subjects intimately associated with industrial medicine. The lecturers have been chosen from among those medical men who have had much experience in connection with the various phases of medicine in industry. Each lecturer will deal with the special phase in which he is most interested, and the series should prove valuable to all employers of industry in bringing before their notice the importance of medical science when applied to the health of the employee. The complete course as announced will comprise the following lectures:

Feb. 9th.—Industrial Medicine, by Dr. B. L. Wyatt, Director of the Laurentide Health Service.

Feb. 16th.—Periodic Health Examination in Industry, by Dr. Haven Emberson, Columbia University.

Feb. 23rd.—Industrial Sanitation, by Dr. George C. Whipple, Harvard University.

March 9th.—Industrial Health from the standpoint of Tuberculosis, by Dr. Linsly Williams, National Tuberculosis Association.

March 16th.—The Physician in Industry, by Dr. W. A. Sawyer, Medical Director of the Eastman Kodak Company.

Another course of lectures on Social Problems will prove of special interest to those engaged in social work. The programme includes such lectures as "The City at the Cross Roads," by Prof. Arthur J. Todd, Ph.D., author, lecturer, and social worker; "The Family as Main Street sees it," by Rev. Peter Bryce, Chairman of the Mothers' Allowance Commission, Ontario; "The Story of the City Milk Supply," by Dr. T. A. Starkey, Strathcona Professor of Hygiene, McGill University, and "The New Canadian Immigration," by Professor Gilbert Jackson, University of Toronto.

The Library, comprising several thousand volumes on the history and development of medicine, bequeathed by Sir William Osler in his will to the McGill University, will occupy a large room formerly used by the Department of Anatomy on the top floor of the New Medical Building directly opposite to the Medical Library. The room is being entirely remodelled for its reception, and when completed will form a research Library and a permanent memorial to Sir William. The entrance to this library will be through a doorway of marble and from the entrance through a row of columns the visitor will look down the whole length of the Library to the bust of the great physician. The books will be placed in alcoves and portions of the wall not covered by the volumes will be panelled in oak. The walls will be emblazoned with the arms of the four universities with which Sir William was connected, McGill, The University of Pennsylvania, Johns Hopkins University and Oxford University, and the central wall will be emblazoned with Sir William's coat of arms. Tables and chairs for students and cases for rare books will complete the furnishings, and the name of the Library will be inscribed in Latin over the doorway. The work is expected to be complete by the end of the summer when the books arrive. They will be brought to Canada by Dr. W. Francis, the nephew of Sir William Osler, who will afterwards act as Librarian of the collection. The books are at present being catalogued at Oxford.

ONTARIO

The friends of the Homewood Sanitarium, of Guelph, Ont., will learn with a great deal of regret, that, owing to ill-health, Dr. A. T. Hobbs, the Medical Superintendent of the Institution for so many years, has resigned his position. Under his direction the Sanitarium has made great progress, and has extended its field of activities widely. It has been a great help in times of trouble to many of us, and its reputation now ranks second to none in the Dominion.

It will give great satisfaction, however, to hear that Dr. Hobbs' place has been taken by Dr. Clarence B. Farrar, a graduate of Harvard College and Johns Hopkins University. Dr. Farrar received his initiation in the practical study of mental diseases as Asst. Physician in the Sheppard-Pratt Hospital, Baltimore, under such able teachers as Stewart Paton and Edward Brush. After two years of special graduate study in Heidelberg University and in France and England, he received the appointment of Assistant in the Carnegie Institute of Washington. From 1904 to 1913 he held the position as Asst. physician and Director of the Laboratory at the Sheppard and Enoch Pratt Hospital, of Baltimore. From 1913 to 1916 he was Asst. physician of the New Jersey State Hospital for Mental Diseases, visiting Neurologist at the Mercer Hospital, Trenton, N.J., and Lecturer in Abnormal Psychology, Princeton University.

Although a citizen of the United States, he served in the Canadian Army Medical Corps from 1916 to 1919 as Captain and Major, being Psychiatrist to the Military Hospital Commission from 1916 to 1917, and since December, 1918, he has been Chief Psychiatrist in the Dept. Soldier's Civil Reestablishment, at Ottawa. Dr. Farrar is a member of the American Psychiatric Association and the Ontario Neuro-Psychiatric Association. He has published numerous articles in the field of Neuro-Psychiatry, Brain Histology and Histopathology. We all wish Dr. Farrar all the success which he so properly deserves in his new undertaking. C.K.R.

The annual Health Report of the City of Hamilton published by Dr. Jas. Robert, M.H.O., makes very inter-

esting reading. He and his active co-workers are to be congratulated on the way in which they have carried out the details of their many activities. The death rate of 9.8 per 1,000 is the lowest in the history of the city. The figures on infantile mortality are remarkable. Excluding premature and still births, 180 deaths occurred in infants under one year of age; in other words, there were only 58 deaths per 1,000 of living births. This rate for 1922 is only one-third of the rate for 1905. These figures and the percentages given in the report show that if the infantile death rate for 1921 had prevailed in 1922, then 240 babies under one year of age, rather than 180, would have died.

The work of the Health Centre is fully described. It is situated in the old library building and was opened in 1921. The Tuberculosis Clinic is in charge of Dr. J. H. Holbrook, of the Mountain Sanatorium, assisted by Dr. C. R. L. Morgan and others. A qualified nurse is in attendance. Four clinics are held a week for adults and school children. If a patient does not respond well to treatment he is invariably sent to the sanatorium. Children with glandular and bronchial infection are carefully watched. Milk tickets are supplied to the poor by the Hamilton Junior Health League, and with money left by the late Miss Doolittle, eggs, fruit, and other dainties can be provided. A dental clinic is held at the Health Centre in addition to those at two of the public schools, which are under the Health Department. Two dentists, one nurse, and an anaesthetist give their services. There is also a Baby Welfare Clinic which has been a great success.

Only 21 cases of typhoid fever were reported, 9 of which were definitely traced to infection outside the city. There was only one death. Chickenpox is represented by 530 cases and smallpox by 14. There were 74 cases of anterior poliomyelitis, of which 5 ended fatally.

Dr. F. G. Banting has recently visited several of the important centres of the United States, including Baltimore, Boston, New York, Detroit, Chicago, and the Mayo Clinic at Rochester, where he delivered scientific addresses before the Academies of Medicine, and other learned bodies, giving them the history of the discovery of Insulin and its application to the treatment of diabetes. It has been recognized everywhere that this piece of research work is of the first order, and that Banting himself is essentially a scientific worker of unusual calibre.

MANITOBA

At the last meeting of the Manitoba Medical Association the following officers were elected, S. J. S. Peirce, Brandon, President; D. A. Stewart, Ninette, Vice-President; F. Lachance, Winnipeg, 2nd Vice-President; N. W. Warner, Winnipeg, Honourary Secretary. *Editorial Board:* Egerton L. Pope, Winnipeg, Chairman; F. C. Bell, Winnipeg, Secretary; William Boyd, A. T. Mathers and James McKenty, Winnipeg.

BRITISH COLUMBIA

We regret to note that a dispute has arisen between the medical officers employed by the C.P.R. Employees' Medical Association, and the latter organization, owing to the excessive amount of work imposed on the medical officers. Many conferences have taken place between the two. According to the statement of the medical officers the Employees' Association have on several occasions agreed to their demands after full discussion, but later on have withdrawn from their new arrangements. The medical officers state that the contract of January, 1922, was of the all-inclusive or blanket type, whereby the doctor was required to give treatment for any and all conditions arising not only in the employee himself but in his family and dependents. The medical officers' committee in their request for a modification of the contract offered to the employee a full service, but requested that all operations on the family and dependents be withdrawn from the contract; these latter however would still receive a service for ordinary sickness and first aid in injuries. The railway officers' committee state that in making this proposal to the Railway Association they are conceding a far more amplified service for the remuneration paid than is given to any similar railway organization in Canada or in the United States. A further concession was also made on behalf of the profession of British Columbia by offering the Railway Employees' Association the privilege of having such operations as had been withdrawn from the contract done under a special agreement with the British Columbia Medical Association at specially reduced prices similar to those of the Workmen's Compensation Board. The answer to this offer has been delayed from time to time until during January an attempt was made by the Employees' Association to deal with some of the medical officers independently and without the knowledge of the Industrial Service committee of the British Columbia Medical Association, who had been authorized to act for them. The Railway Committee then sent a notice to all their medical officers whether involved in the matter at dispute or not, to meet the Railway Employees' Association in Vancouver individually. To this request the medical officers made no response. While these negotiations were going on advertisements were inserted in the Press calling for applications from medical men to fill the positions of the medical officers of Vancouver. The medical officers in presenting this statement to the profession in Canada feel that they have gone as far as they can, and while for the present no one of them is refusing to give his services to any employee requesting such services, it is hoped that any member of the profession elsewhere in Canada will acquaint himself fully with the facts of the situation before accepting any position with the Employees.

The British Columbia Medical Association Executive and Committee have been particularly busy during the past few weeks with various matters of importance. The Industrial Service Committee under the chairmanship of Dr. A. S. Monro, has had a strenuous time in connection with the dispute between the C.P.R. Employees' Medical Association and the British Columbia Medical Association, a detailed report of which will be found in another column.

Dr. E. M. Pearse assumed the position of General Superintendent of the Provincial Royal Jubilee Hospital, Victoria, B.C., on January 1st. The appointment of Dr. Pearse is popular with the local profession and he is assured the good wishes and loyal support of all. The east wing of the new hospital is rapidly approaching completion. This will be the last word in hospital construction and Victoria anticipates with pride its early opening.

XUM

The Educational and Publicity Committee (chairman, Dr. W. B. Burnett) is working on the forthcoming "Public Health" Campaign which is expected to be on a larger scale than last year. The weekly "Health" bulletins now appearing in the Victoria and Vancouver papers are apparently much appreciated by the public and it is ntended to make them a permanent feature.

A special general meeting of the British Columbia Medical Association will be held on February 12th, when the members will be asked to vote on a resolution eliminating from Railway Medical Contracts all medical and surgical work on the wives and dependents of employees.

Dr. Edward S. Hasell has beer forced through ill-health to resign the position of Medical Superintendent of the Provincial Royal Jubilee Hospital, Victoria, B.C.. Dr. Hasell was Superintendent of the Jubilee hospital for a period of twenty years. The local profession wishes him a speedy recovery to health.

Obituary

LAWRENCE BRUCE ROBERTSON, B.A., M.B.

In the death of Dr. Bruce Robertson at the very early age of thirty-seven, in the prime of his manhood and just on the threshold of a career of great promise, the profession has lost a straightforward, honest and brilliant young surgeon, the University an ardent investigator, and enthusiastic teacher, and his colleagues on the Hospital Staff a sincere friend and "genuine good fellow."

Bruce Robertson was born in Toronto in 1885 of Scottish parents. He was educated at Upper Canada College and the University of Toronto, graduating in Arts in 1907. He entered Medicine after his Arts course was completed, and was noted as an earnest and ambitious student, acting as class assistant in Physiology and Pharmacology during the last two years of his undergraduate course. He graduated in 1909 and was appointed interne in the Hospital for Sick Children, receiving one year's training in the surgery of childhood. The next year he successfully competed for a post as interne in the Fourth Surgical Division of Bellevue Hospital, New York City. He served in this capacity for eighteen months, obtaining a valuable experience in general surgery. For a further period of six months he acted as House Surgeon in the Children's Hospital, Boston, and thus rounded out his surgical training.

On his return to Toronto he was offered an appointment as Junior Surgeon to the Hospital for Sick Children, which he filled with great efficiency. In the reorganization of the Staff in 1921 he was made Associate Surgeon, and occupied this post at the time of his death.

With so excellent a foundation for a surgical career, and surrounded by colleagues who were all keen, progressive and argumentative, he was provided with the necessary stimulus for his surgical advance, and at once took his place as an equal, and in many ways a leader, among his confrères. Many of the unsolved problems in the surgery of childhood attracted him, and at an early date he set himself the task of solving some of them. In collaboration with the medical service he did much to advance the surgery of pyloric obstruction in infants, and largely through his efforts the operation of Rammstedt was introduced as the routine treatment of obstructive conditions which required surgical interference. Blood transfusion in marasmic infants and other toxic conditions attracted him soon after his appointment, and although this aspect of his work was interrupted by his war service, his army experiences sent him back to it with a new zest, and he gave it much serious attention. As a result he suggested and brought into operation exsanguination combined with transfusion in selected cases of extreme toxaemias, especially in severe burns. After a great deal of research and experimental work on this subject he perfected the technique so that a greater part of the entire blood of an individual could be withdrawn and new blood from a series of donors substituted. The results were in many cases brilliant, and there is no question that by this method the mortality in severe toxaemias was tremendously lessened. This work alone will perpetuate the memory of Bruce Robertson in the annals of surgery. Much study was devoted also to the subject of empyema in childhood, and he was energetically following a series of cases treated in various ways, in an effort to lessen the mortality and to restore patients suffering from this serious disease to a complete functional cure.

His keen participation in all the surgical activities of hospital, University and medical societies made him generally and favourably known. In his University work he was thorough, and always willing to spend time and effort to make his clinics helpful. He had just enough satire in his speech to make his lessons impressive, and all his students held him in the very highest esteem.

The work he did as an undergraduate laboratory assistant in Physiology and Pharmacology made it easy for him to take up the laboratory work in Pathology which related itself closely to his surgical duties. He was appointed assistant in Pathology in 1914, as well as assistant in Clinical Surgery in the same year, and held the post of demonstrator in Clinical Surgery in the University at the time of his death.

At the outbreak of the War, as a young unmarried man he felt the call of duty for service overseas, and as early as August, 1914, was commissioned as Lieutenant in the C.A.M.C. After a period of several months' duty at Exhibition Camp, when No. 2 C.C.S. was mobilized in February, 1915, Dr. Robertson was taken on the strength of that unit with the rank of Captain. After necessary but none the less irksome delays the unit left Halifax in April, 1915, and on arrival in England Dr. Robertson was attached to Moore Barracks, Shorncliffe, until his unit proceeded to France in September, 1915.

For many months he did excellent service at the base being for some time attached to No. 14 General Hospital at Wimereux. Here very soon after his arrival he was able to demonstrate the value of blood transfusion, and was the means of saving a number of patients who apparently would have succumbed otherwise.

In November, 1916, he rejoined No. 2 C.C.S. at Remy Siding, just behind Poperinghe, as surgical specialist, and in this very active unit he gave of himself unsparingly, with very little leave until January, 1918. The magnitude of the work is imagined when it is noted that 30,000 casualties passed through this C.C.S. in the campaign of 1917, and before the system of team work was established Major Robertson was on duty often sixteen to twenty-four hours at a stretch. Eventually his health gave way under the strain of this work, and he was given leave to London.

Ambulance cases coming direct from the firing line to the C.C.S. presented many opportunities of demonstrating the inestimable value of blood transfusion in severe loss of blood from wounds. Major Robertson had provided his own apparatus and took it with him from Canada, and its life-saving features were so evident that it soon attracted the attention of his superior officers and he was called upon frequently to demonstrate in Canadian and Imperial units the methods employed. There seems no doubt that to Major Robertson belongs the credit of establishing this method of treatment of shock and haemorrhage upon a firm basis in army procedure.

His ingenuity was shown again in the modified gatch frame he devised out of stretchers for maintaining the Fowler position in abdominal and chest wounds, which added wonderfully to the comfort of the wounded, and materially improved their chances of recovery.

On account of continued ill health he was invalided home in February, 1918, but continued on duty in the hospitals in Canada, and was demobilized finally in December, 1920. During the last months of his service in Canada he was detailed by the Militia Department to make models and descriptions of transfusion apparatus and methods of application, for preservation in the Army War Museum at Ottawa.

The life of Dr. Bruce Robertson was such an one as might serve as a pattern for any young surgeon, and at his death a great host rises up to revere his name. He is separated from us in the body, but his spirit will live and his works will remain as a permanent memorial.

CLARENCE L. STARR

Dr. John Mills died in London on January 29th, in his 68th year.

Dr. Henry T. Knapp, McGill. 1895, died at Sackville, N.B., on January 31st, a graduate of Acadia College in Arts as well as of McGill in Medicine.

Dr. Sydney P. Cooke, McGill. 1869, died at Ottawa on January 30th, considered the Dean of the medical profession in Ottawa, where he had practised for the last fifty years.

Dr. Robert W. Bucke, of Windsor, died suddenly at his residence on January 15th. A graduate of 1906, he was the son of the late Dr. R. Bucke, of London, and had but recently come to Windsor.

Dr. E. L. Burnham, a well-known physician of Millbrook and the district, died there on February 9th, in his eighty-first year. Dr. Burnham was a graduate of the University of Toronto, and was the gold medalist of his year. He first practiced in Hillsburgh, near Guelph, moving to Cannington, and finally to Millbrook, where he had lived for more than forty years.

Dr. Archibald M. McLay, who had been a resident of Woodstock for fifty years died in that city on January 28th, 1923. Born in Glasgow in 1843, he came to Canada in 1854, and lived in the county of Elgin, moving later to Woodstock. As alderman and as a member of the Board of Education he had shown an interest in all local questions. He had served as Medical Officer of Health for years. An ardent Liberal, he had assisted various members of Oxford county in their political campaign. Dr. McLay is survived by his wife and eight children, two of his sons are members of the medical profession, one in Grimsby and one in Woodstock.

Dr. F. C. Campbell, one of Hepworth's early and best known residents died in that village on January 30th. A brother of the late Wilfred Campbell, the well-known Canadian poet, Dr. Campbell was born near Port Dover in 1859. He graduated at the Owen Sound Collegiate, and took his degree in Medicine from Trinity, beginning practice in the county of Peterborough, but later going to Hepworth. Dr. Campbell had served the municipality for many years on the school board and was known in the district as a practitioner of the old school, one ready to offer any assistance at any time, and one whose loss will be much felt in the community.

Sir Thomas George Roddick—As we go to press this 20th inst., the news reaches us of the death in the early morning of Sir Thomas George Roddick, M.D., LL.D., F.R.C.S. Medical men everywhere throughout the Dominion will deeply mourn his passing, for not only did he during his life time take an active part in all efforts tending to the advancement of our profession, but his genial and generous character made him friends in every province. His university, his adopted city and province, and the Canadian profession which he did so much to unify, will receive the news with deep regret. We hope to refer at length in our next issue to the many events in the very notable record he made for himself in his professional career and as a Canadian.

Dr. C. E. Preston, one of the best known of Ottawa's medical men died of pneumonia on February 7th. Only thirty-eight years of age, Dr. Preston will be remembered as a keen worker in orthopaedic surgery and roentgenology and particularly so by those who had the good fortune to be associated with him in No. 1 General Hospital, at Etaples, France, where the excellence of his technique was always in evidence. Well trained at home and abroad, he was a quiet master of his art and one also who brought to the performance of his duties a delightful personality and charm of manner. Dr. Preston was a graduate of McGill in 1904, and L.R.C.P. and S., of Edinburgh, 1906.

Dr. R. H. Scott, one of New Westminster's most prominent physicians, passed away January 23rd., 1913, at the Vancouver General Hospital. He had been in very poor heath for the past two years. Born in Pembroke, Ontario, in 1881, he was educated in the Pembroke schools and graduated in medicine in 1904 from Queen's University. Dr. Scott came to British Columbia in 1907, and was for a time at Phoenix, later removing to Fraser Mills, where he lived until four years ago, when he moved to New Westminster. For the past twelve months he was medical officer for the Canadian Western Lumber Company, Limited, and for several years was Mayor of Maillardville. In 1912 he married a daughter of Samuel Brethour, of Sidney, B.C., who with her three children is living in New Westminster.

The death of **Dr. William Robson Nichols** occurred suddenly from cerebral haemorrhage on December 5th at his residence in Winnipeg. The deceased was born at Markham, Ontario, in 1860, and graduated from Trinity Medical College in 1886. He shortly afterwards took post-graduate work in gynaecology and surgery in New York, and later on went to London, where he became a pupil of Sir R. J. Godlee, and a house surgeon at Guy's Hospital. He obtained his L.R.C.P. in Medicine in 1899, and his F.R.C.S. in Surgery in 1902. He afterwards came out to this country and settled in Winnipeg, where by his untiring labour and brilliant accomplishments he rose to an eminent position in his profession. He was President of the Winnipeg Clinical Society, and was an examiner in Surgery in Manitoba University in 1908. The same year he was chairman of the Surgical Committee of the Dominion Medical Association. In 1913 he was elected a Fellow of the American College of Surgeons, and also a member of the American Association of Gynaecology. He leaves a widow and four daughters, two of whom are married.

Book Reviews

History of the Great War, Based on Official Documents. Medical Services Surgery of the War. Vol, I. Edited by Major-General Sir W. G. Macpherson, K.C.M.G., C.B., LL.D.; Major-General Sir A. A. Bowlby, K.C.B., K.C.M.G., K.C.V.O.; Major-General Sir Cuthbert Wallace, K.C.M.G., C.B., and Colonel Sir Crisp English, K.C.M.G. Octavo, 618 pages. Illustrated. Price, £1 5s. 0d, Net. Printed and Published by His Majesty's Stationery Office, Imperial House, Kingsway, London, W.C. 2, 1922.

"The unparalleled number of battle casualties which occurred during the war gave consulting and specialist surgeons an unrivalled opportunity for surgical work, and as the years went on the improvement in methods, and the skill acquired in dealing with wounds, placed war surgery in a position which it had never occupied in the past.

"The account of this work, recorded in the two volumes of the Surgery of the War, has been prepared by the Consulting Surgeons and by some of the surgical

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specialists who held commissions in the Royal Army Medical Corps."

The eighteen chapters include a reference to the various problems of Military Surgery from Projectiles and their action. Wound Shock, Blood Transfusion, Gas Gangrene, Tetanus, Trench Foot, Injuries of the Chest, Pericardium and Heart, to Wounds of the Abdominal Viscera, and also refer to the varieties of work encountered in Field Ambulances, Casualty Clearing Stations and Base Hospitals both on the Western Front and in the United Kingdom, as well as to work in Palestine, Mesopotamia and Macedonia.

It will be obvious that in a monumental work of this character there is much that is of a highly technical nature from the viewpoint of the Military Surgeon, but there is also much that is properly applicable to the civil surgery of the present day. The chapters dealing with Shock, Blood Transfusion and Tetanus, and the extended references to the Wounds of various portions of the body should be of extreme value to every surgeon, particularly since the object of the work is to describe only those methods which at the end of the war had been found to be the most trustworthy.

It is with extreme pleasure that one notes the extended reference to and appreciation of the work done in the development of blood transfusion by Dr. Bruce Robertson.

The volume is well printed, carefully edited and beautifully illustrated, and will be a valuable addition to the library of every active surgeon. E. R. S.

Diseases of the Heart. By John Cowan, D.Sc., M.D., Glasgow, and W. T. Ritchie, O.B.E., M.D., Edinburgh, with a chapter on the Ocular Manifestations of Arterial Disease, by Arthur T. Ballantyne, M.D. Second edition, p. xvi 605, demy 8vo. with 32 illustrations and tracings. Price, 30s. net. London, Edward Arnold & Co., 1922.

The first edition of this work appeared in 1914. During the eight years which have elapsed much has been added to our knowledge of the heart in health and disease. The study of heart murmurs and of cardiac efficiency has been an important clinical research during the war, and the results of strain and infective disease have been carefully investigated. It has been shown that not only acute infections but chronic focal infections play an important part in endocardial and myocardial changes. The authors have had special opportunities to study cardiac conditions both in active war hospitals and in their work for the Ministry of Pensions. As a result, many of the chapters in the previous editions have been revised and a number of chapters have been added. The work is a comprehensive presentation of our present knowledge of diagnosis, prognosis, and treatment of heart and arterial disease with chapters upon the anatomy and physiology of the circulatory organs. Ritchie in numerous journal articles has made valuable contributions to the literature of cardiac disease, and the present volume though of necessity making frequent reference to the work of other authors, is to a great extent a record of personal observation and opinion based upon wide practice and the attentive study of much clinical and pathological material. A book based upon intimate personal study of cases must always recommend itself to its reader, and this work is no exception Clear, concise, comprehensive, it should appeal to a wide circle and it is heartily recommended to every practitioner.

Under prognosis in auricular fibrillation, mention is made of one patient who had persistent fibrillation for at least three years before his death, another whose auricles were in fibrillation for at least nine years before he died, and for six of those years he worked at the pithead. A physician, aged eighty-five, has had auricular fibrillation for six years though he remained on duty during the war. The cases which are associated with mitral stenosis seem to have a better prognosis than those which are due to other cardiac lesions. In a general way the inception of permanent fibrillation is the beginning of the end, though many patients are able to lead quiet lives for a year or two after the onset. The immediate prognosis depends chiefly on the rate of ventricular contraction, the presence or absence of ventricular dilatation, and the response to the administration of digitalis. The prognosis is relatively favourable if the pulse rate, with or without drugs, can be kept within normal limits. The prognosis is always grave if ventricular extrasystoles are superadded, and these patients will probably die within two years at the latest.

The author's opinion of the value of quinidine sulphate is summed up in a short paragraph. "In the most favourable cases the arrest of the fibrillation is only transient. The normal rhythm is seldom maintained for longer than a few hours or days, and the general condition of the patient is but little, if at all, benefitted. In exceptional cases the normal rhythm has been maintained for several months by intermittent administration of quinidine. On the whole quinidine seems to be of little therapeutic value; in efficacy it cannot be compared to digitalis."

J. H. E.

Gonorrhoea and Impotence—Modern Treatment. By Edwin W. Hirsch, S.B., M.D., American Electrotherapeutic Association, 1st. Lieut. M.C., U.S. Army. With an additional Lecture on Ultra-Violet Radiation by A. J. Pacine, M.D. 172 pages, with illustrations. The Solar Press, 209 S. State St., Chicago, Ill., 1922.

Frankly one can find little in this small volume to commend it to the average practitioner. The preface states that, "The average doctor after graduating goes forth from medical college with hazy and indefinite ideas of the most important of human affections, venereal diseases." If this be so one cannot see that this work will enlighten him to any great extent. Apparently the author believes that the most important agents in the treatment of all subacute and chronic gonorrhoeal infections and their complications are Diathermy, Radiant Heat and Ultra-Violet Radiations.

The text is sadly in need of proper proof reading as this quotation may attest: "The average case of Gonorrhoea in women however, is ambulatory and the office treatment is the principal one. Nothing compares with Ultra-Violet Radiation in the treatment of Gonorrhoea for it relieves the infection by killing the HOST."

One can only observe that the average host does not want to be killed. E. R. S.

Vitamines and the Choice of Food. By V. G. Plimmer and R. H. A. Plimmer, D.Sc. Octvo. xii. 164. Numerous plates and cuts. Price, $2.50. Longman Green & Company, London, Toronto, 1922.

This excellent book cannot be too highly recommended to the general practitioner or intelligent laymen. It is well written, thoughtful, unbiassed and constructive. The last two chapters alone, "Effect of partial deficiencies in the food" and "Errors in the selection of the food" will be valuable to many a practicing physician who finds difficulty in advising his patients in matters of diet. Vitamins have become such a popular subject of discussion that no physician should be ignorant of what they are and their importance. This book will fill his wants and yet prove not difficult reading. The publisher is to be congratulated on having printed a book by an eminent expert couched in simple language, suitably and well illustrated and well printed. V. E. H.

Physiology for Dental Students. By A. G. Curzon-Miller, B.Sc., L.M., S.S.A., F.C.S. Octvo. viii, 266. Price, 15s. Edward Arnold, London, 1922.

This book can be strongly recommended to the physician as a readable and well written account of physiology in its widest sense. Necessarily it is somewhat limited in its scope and pays more attention to the mouth and to digestion than the ordinary text-book, but in spite of this it is a good all round book. The development of the mouth parts is treated adequately from the point of embryology and were our dentists as well trained in physiology as this book postulates, they would be useful confrères of the physician. V E. H.

Practical Physiology. By E. P. Cathcart, M.D., D.Sc., F.R.S., D. Noel Paton, M.D., LL.D., F.R.S., and M. S. Pembrey, M.A., M.D., F.R.S. Octvo, xii. 344 pages. Numerous cuts. Price, 18s. Edward Arnold & Co., London, 1922.

This is a well printed and bound book, written by three distinguished Englishmen all of whom have previously published separate books of a similar character. It is entirely a laboratory manual with excellent exercises carefully compiled by experienced teachers and splendidly illustrated. As it is not intended for the physician, an extensive review in this place is not indicated but it is a most valuable book for the laboratory worker. The handicap under which the research worker and teacher of physiology in Great Britain suffers, owing to the anti-vivisection laws, is plainly manifested and is another evidence that supremacy in such work and in the understanding of health and disease must pass to America, where as yet there is more freedom. The profession in Canada must prevent if possible this handicap being imposed on work here. V. E. H.

The Writing of Medical Papers. By Maud H. Mellish, Editor of the Mayo Clinic Publications. 12mo. of 157 pages. Cloth, $1.50 net. Philadelphia and London: W. B. Saunders Company. Toronto: The J. F. Hartz Co., 1922.

Mrs. Mellish has presented in attractive and readable form a handbook for the guidance of those who do not possess the art of writing. Were writers of medical papers and essays to follow its directions and suggestions, the editors and proofreaders would find much time on their hands and much more pleasure in the hours devoted to their work. Editors have frequently drawn attention to the lack of care exercised by medical contributors in the preparation of their articles for publication. Careless punctuation, wrong use of capitals, inattention to paragraphing, lack of uniformity in recording the references, violations of good usage, carelessness in use of abbreviations, irrelevant title, incorrect English, failure to build the paper on a complete outline, and lack of careful revision are some of the faults most frequently noted by medical editors. Careful reading with occasional reference to this small work should lessen the errors found in scientific papers. The work too is in such form as to be of assistance in creating more uniformity in medical journalism. In an attempt to define what is proper and what is not accepted as pure English there is not infrequently a difference of opinion but those who follow Mrs. Mellish's guidance will not go far astray. Here and there a slip is to be found. For example, Manit. is given as the proper abbreviation for Manitoba. No fault can be found with the abbreviation Alta. for Alberta, though it is generally understood that the provincial authorities prefer that the name be spelled in full. There is appended a short list of books and articles which have appeared on the theory and practice of the writing of scientific articles. J. H. E.

Practical Chemical Physiology. By W. W. Taylor, M.A., B.Sc. Pp. 68. Price, 4s. 6d. net. Edward Arnold & Co., 1922.

It contains the experiments performed in practical biochemistry by the medical students at the University of Edinburgh and includes rather less qualitative and more quantitative work than is usual in such courses. There is no discussion either of theoretical or practical considerations. H. W.

A Laboratory Handbook of Biochemistry. By P. C. Raiment, B.A., M.R.C.S., and G. L. Peskett, B.A. Pp. 100. Price, 5s. net. London: Edward Arnold and Company, 1922.

This little book contains an excellent series of laboratory exercises appropriately arranged for use as a course for medical students. The experiments cover all the important properties of the various biochemical substances. They are clearly and concisely described and in those cases where complications often arise, are accompanied by excellent explanatory notes. The author has also included in each section a short theoretical discussion of the subject sufficient in scope to be distinctly helpful to the student in need of orientation, but so condensed that his time in the laboratory will not be unduly diverted from practical work. H. W.

Generalized Pain. By Prof. Dr. Norbert Ortner, Vienna. Translated by Francis J. Rebman, being Part II of Ortner's Clinical Symptomatology of Internal Diseases. Pp. xiii, 596, 8vo. New York: Medical Art Agency. No date.

Part I, dealing with abdominal pain, was received so well that the author followed with this volume which is now translated soon after its appearance in its second German edition. Dr. Edgar in his short introduction states that it represents a complete symptomatology of all the painful sensations experienced by the human organism with the exception of the abdominal region. *Generalized Pain* does not properly express the scope of the work which deals with pain other than abdominal. We cannot agree with the translator's statement that it is appropriate. The introduction too, states that "The translator has chosen clear and simple English, making the book easier to digest and more readily assimilated." With this statement in mind one reads on page 99, "During the menstrual period complaints of sacral pain are ripe, especially in pregnant women, primarily due to the menstrual molimena." Clear simple English indeed! On page 94 we read "A uterine carcinoma may be the causating element." On page 197 reference is made to a "peripheritic abscess;" on page 64 among English words "volumen pulmonum auctum." On page 437 "congital" is probably in error for congenital as is "rachitie" for rachitic, if not, these words are beyond our ken. But why on the same page the translator should use the Greek form parotis when speaking of the parotid gland we cannot understand. No strong objection can be raised when the translator uses the term tendovaginitis instead of the more usual tenosynovitis, but we are not accustomed to the adjectives motoric and vasomotoric. Hyperthesia on page 311 is another unusual word. We read of a rupture of the heart, of the bursting of an aneurysm and the bursting of a bronchial gland. There are so many changes in terminology that when one reads on one page of "dry pleuritis" one wonders whether pleurisy sicca might not be found on reading further. Mitral ostium is a similar combination of Latin and English frequently found. Repetition is avoided by referring to the innominate artery as the anonymous artery and elsewhere as the anonyma artery or simply as the anonyma. The use of the word motation is also perhaps an attempt to introduce variety. Ortner's writings are usually good. This may be good in the original. The chapter headings indicate an attempt at excellent classification, and there is a mass of material in the volume. The translator has given us, instead of clear lucid statements, readily assimilated, a mass of confused terms, requiring more study than is warranted in attempting to get a clear picture of the subject. The book abounds in misprints throughout. J. H. E.

Manual of Gynecology. By John Osborn Polak, M.Sc., M.D., F.A.C.S. Second Edition, revised. 378 pages with 139 engravings and 10 coloured plates. Price, $4.50. Lea & Febiger, New York and Philadelphia, 1922.

In this book of somewhat less than four hundred pages the author has attempted to cover the essential details of a complete study, from a general point of view, of the subject of Gynaecology. That his efforts have been attended by a large measure of success is undeniable. By making his statements "snappy" he has eliminated about half of the pages that are usually found in a book on gynaecology and that, too, without much loss of value. The illustrations are apt and sufficient in number for the purpose of such a book. Elimination of the nude diagram of the Sims' position on page 38 would not detract from its value. Little purpose is served by the diagram of the knee-chest posture on page 39 and it is not attractive. The inclusion of the haemorrhage charts is a good feature as an intensive study of these is of great value as suggesting differential diagnosis in cases in which hae-

morrhage is a noted symptom. On page 46 the author states, "The right hand should be used in examining the right side of the pelvis, while the left hand has greater facility in determining the contents of the left side." To change hands during an examination is an unnecessary, disagreeable practice which should be avoided unless under exceptional circumstances. The explanation of the menorrhagia from fibroids as given curtly at page 263-4 is not likely to satisfy the gynaecologist who recognizes the function of the uterine muscle in the control of the intimate circulation of the uterus. On the whole this book should prove useful to students and general practitioners, as it is essentially practical. F. W. M.

The Art of Anaesthesia. By Paluel J. Flagg, M.D. Third Edition, revised. 371 pages with 136 illustrations. Price, $4.50. Published by J. B. Lippincott Co.

In this volume, Dr. Flagg has brought to our attention an instrument which he has devised, viz., the Haemoxometer, for the clinical measurement of cyanosis. This is entirely new and worthy of note, although whether it will be of any practical value remains to be seen. It is probable that many anaesthetists will disagree with some of the author's views: for instance, in his citing of the advantages of using the open drop method, where he says this method is fool proof, whereas one should hesitate to make the statement that any method is fool proof. Then again the author states that there are certain subjects who cannot be controlled by this method, which has not been the experience of many good anaesthetists. To those who have read the former editions of this work, the mastery of detail that Dr. Flagg has shown, will be familiar. This book gives a great deal of valuable information, and every anaesthetist should have it in his library. S. J.

International Clinics. Thirty second series, volume iv, 1922. Edited by H. R. M. Landis, M.D., Philadelphia, with medical and surgical collaborators in United States, England and Canada. Price, $2.50 per volume, or $10.00 for the series of four. J. B. Lippincott Company, Montreal.

The final volume of the 1922 series contains twenty-seven articles grouped under the headings, medical welfare work, nutritional problems, clinical medicine, pediatrics and clinical surgery. The papers are by American writers with the exception of three. J. W. Ballantyne writes most interestingly of the work of the Antenatal and V.D. Clinics at the Edinburgh Royal Maternity Hospital, Sir Humphrey Rolleston gives a splendid resumé of medical aspects of gall bladder disease and Labbé and Bith of Paris, discuss acidosis. Sterling Mead, of Washington, D.C., has an illustrated paper on diagnosis of oral sepsis with over one hundred and twenty-five roentgenograms, a companion paper to the one appearing in the last number of the *Clinics*. Major Hitchens lecture on diphtheria, with administration of antitoxin, the Schick test, and the management of epidemics is a most excellent one and covers fully the therapy of the disease. He points out that the deaths from diphtheria in the United States, formerly 80,000 annually have fallen through the use of antitoxin to 20,000, and believes that by use of the Schick test and administration of toxin-antitoxin many of these 20,000 would be saved. John M. Swan and his collaborators deduce from their clinical study of a series of patients with diastolic heart murmurs, that all diastolic murmurs are organic. The study has been a thorough one and the paper is well illustrated. This volume completes the 1922 series, a series which is a credit to the editors and contributors alike. J. H. E.

Pulmonary Tuberculosis. By Maurice Fishberg, M.D., New York. Large, 8vo., pp. 891, 129 engravings, 28 plates. Third edition. Price, $8.50. New York, Lea & Febiger, 1922.

That two former editions were exhausted in five years bespeaks the popularity of this work. Every physician in general practice has to deal with cases of pulmonary tuberculosis and should not consider his duty at an end when he makes a diagnosis and advises sanatorium treatment. There is not sanatorium accommodation for all our cases, so that a large number must, perforce, be treated at home. Nor can many patients remain at a sanatorium until treatment is completed. They must continue treatment at home. How to care for the tuberculous patient must be adequately understood by the general practitioner, and few text-books on clinical medicine cover the ground fully. A monograph such as this should find a place in the library of every physician. The physician will learn that given proper facilities for treatment and with cooperation from the other members of the family, the patient may be treated effectively at home, and that by careful attention to details he may look for the same immediate and ultimate results as in institutional treatment. If a period of sanatorium treatment can be secured for the patient, the physician will then find it much easier to carry on treatment at home. Prevention of infection of others is an important part of the treatment. The author points out clearly the lessons learned from experimental work with animals and from our knowledge of the extent of tuberculous infection in children. Children are to be protected from infection, but as most adults have tuberculous infection (to be distinguished from disease) they require protection not so much from the patient as from those conditions which tend to cause extension or activity of the infection already present—that is to avoid changing the infection with its degree of immunity, into active disease.

Many of the chapters have been revised in this new edition and new material added. Two new chapters have been added. One is on the medico-legal and insurance aspects of tuberculosis, the other on the reciprocal relations between pulmonary tuberculosis and certain physiological and pathological processes such as growth, puberty, sexual functions, pregnancy, etc. Consideration is also given to the presence of co-existing conditions such as tuberculosis in other organs, non-tuberculous diseases of the upper and lower respiratory tract, endocrine disturbances, the exanthemata and other infectious diseases, etc. The reader is reminded that in the chronic forms of pulmonary tuberculosis the patient may live for many years and during this period may suffer from almost any other disease to which man is subject. The reciprocal relations of the tuberculosis and other disease is presented from the author's viewpoint.

There is still much to learn regarding infection, epidemiology, predisposition, methods of entrance of the bacillus and the problems of immunity. Fishberg has his own strong opinions regarding many of these problems and present day theories which undertake to explain them. He gives a fair presentation of the views of others so that these chapters will give the reader a good conception of the working theories of the day with the experimental and clinical evidence upon which they are based.

The general management of the case with chapters upon rest and exercise, open air treatment, and climatic treatment is fully discussed. The value of medication receives careful attention, both in the treatment of the disease itself and in the treatment of various symptoms and of complications which may arise. The author is not enthusiastic about tuberculin. He quotes the opinions of many physicians of prominence who believe in its efficiency, but is unable to substantiate their belief from his own observations in practice.

There is a good chapter on the induction of pneumothorax which has proven a valuable method of treatment—one of the most valuable procedures we have at our disposal, but unfortunately one which can be successfully induced only in a small proportion of cases. The chapter on climatic treatment will make clear to the reader the value of change of environment and discusses impartially the advantages of treatment away from home, in desert, mountain, and seaside resorts. J. H. E.

Aids to Public Health. By W. G. Aitchison Robertson, Pp. 160. London: Baillere, Tindall & Cox, 1923.

This little book purports, in the preface, to be a student's refresher, and to contain the main facts of public health, for the assistance of those preparing for examinations in that subject.

It has the usual faults of British publications on

VARICOSE VEINS

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Public Health, extreme condensation, dogmatism, limited applicability, and is not up to date. General principles of universal use are not much dealt with. In detail, the work on ventilation might have been written twenty years ago. Leonard Hill's classical reports, issued by the British Government itself, do not exist for this author. Typhoid fever "it is said" may come directly from cows through cows' milk. The clinical differences between bovine and human tuberculosis are negligible!

In general, one would hesitate to rely upon the information contained for refreshing the memory; or even for cramming, if one intended to take an examination from modern examiners. It is too superficial and condensed for the beginner; and not bad enough to afford much entertainment for the critic. It therefore fails to fill any long-felt want in any direction within this reviewer's purview.

H. W. H.

Books Received

The Diagnosis and Treatment of Heart Disease. By E. M. Brockbank, M.D., F.R.C.P. Fifth Edition; 232 pages with 25 illustrations and 3 plates. Price, 6s. 6d. net. Published by H. K. Lewis & Co., Ltd., 28 Gower Place, London, W.C.1.

Aids to Public Health. By W. G. Aitchison Robertson M.D., D.Sc., F.R.C.P.E. 160 pages. Price, 3s. 6d. net. Published by Bailliere, Tindall & Cox, 8 Henrietta St., Covent Garden, London.

Carriers in Infectious Diseases.—A manual on the importance, pathology, diagnosis and treatment of human carriers. By Henry J. Nichols, M.D., M.A., with a section on Carriers in Veterinary Medicine, by R. A. Kelser, D.V.M., M.A. Published by Williams & Wilkins Company, Baltimore, Md., 1922.

The Prescriber—January 1923. Published at "The Prescriber" offices, 6 South Charlotte St., Edinburgh.

Mistakes and Accidents of Surgery. By Harold Burrows, C.B.E., M.B., B.S., F.R.C.S. 464 pages. Price, 10s. 6d. Published by Bailliere, Tindall & Cox, 8 Henrietta St., Covent Garden, London.

General and Professional Biology, with special reference to Man. By Edward J. Menge, Ph.D. 886 pages, illustrated. Price, $6.50. Published by The Bruce Publishing Company, Milwaukee, Wisconsin.

How we Resist Disease—An introduction to Immunity. By Jean Broadhurst, Ph.D. 234 pages with 138 illustrations and 4 colour plates. Price, $2.50. Published by J. B. Lippincott Co., 201 Unity Building, Montreal.

Physics and Chemistry for Nurses. By A. R. Bliss, A.M., Phm.D., M.D., and A. H. Olive, A.M., Ph.Ch., Phm.D. 170 pages with 70 illustrations. Price, $2.50. Published by J. B. Lippincott Co., 201 Unity Bldg., Montreal.

Essentials of Surgery. A textbook of surgery for student and graduate nurses and for those interested in the care of the sick. 247 pages, with 49 illustrations Second edition, revised. Price, $2.50. Published by J. B. Lippincott Co., 201 Unity Bldg., Montreal.

Nutrition of Mother and Child. By C. Ulysses Moore, M.D., M.Sc., including menus and recipes by Myrtle J. Ferguson, B.S. 227 pages with 33 illustrations. Price, $2.00. Published by J. B. Lippincott Co., 201 Unity Bldg., Montreal.

I Believe in God and in Evolution. By William W. Keen, M.D. Second edition. 102 pages. Price, $1.00. Published by J. B. Lippincott, 201 Unity Building, Montreal.

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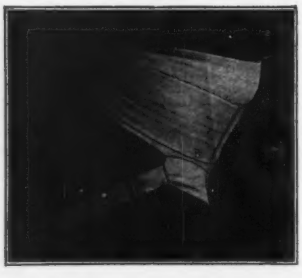

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